

Diversity survey of *Pholcus* spiders (Araneae, Pholcidae) from eastern Sichuan and neighboring areas, with descriptions of six new species

Jinglin Li¹, Shuqiang Li², Xiaoqing Zhang¹, Zhiyuan Yao¹

¹ College of Life Science, Shenyang Normal University, Shenyang 110034, China

² Institute of Zoology, Chinese Academy of Sciences, Beijing 100101, China

Corresponding authors: Zhiyuan Yao (yaozy@synu.edu.cn); Xiaoqing Zhang (zhangxq@synu.edu.cn)

Abstract

Thirteen spider species of the genus *Pholcus* Walckenaer, 1805 are reported from a diversity survey in eastern Sichuan and neighboring areas (northeastern Yunnan and western Guizhou). They belong to three species groups and include six newly described species: *Pholcus qiaojia* Li, Li & Yao, **sp. nov.** (♂♀, Yunnan) in the *bidentatus* group; *P. aba* Li, Li & Yao, **sp. nov.** (♂♀, Sichuan) and *P. wenchuan* Li, Li & Yao, **sp. nov.** (♂♀, Sichuan) in the *crypticolens* group; *P. mengding* Li, Li & Yao, **sp. nov.** (♂♀, Sichuan), *P. miyi* Li, Li & Yao, **sp. nov.** (♂♀, Sichuan) and *P. yaan* Li, Li & Yao, **sp. nov.** (♂♀, Sichuan) in the *yichengicus* group. *P. bidentatus* Zhu, Zhang, Zhang & Chen, 2005 is recorded from Yunnan for the first time and *P. kunming* Zhang & Zhu, 2009 is recorded from Guizhou and Sichuan for the first time. Detailed diagnoses, descriptions, photomicroscope images, and DNA barcodes of all newly described species are provided.

Key words: Biodiversity, cellar spider, DNA barcode, invertebrate, taxonomy



Academic editor: Matjaž Kuntner

Received: 28 January 2025

Accepted: 24 April 2025

Published: 3 June 2025

ZooBank: <https://zoobank.org/60B72181-63C8-4FDC-9582-18F70AD5B9E5>

Citation: Li J, Li S, Zhang X, Yao Z (2025) Diversity survey of *Pholcus* spiders (Araneae, Pholcidae) from eastern Sichuan and neighboring areas, with descriptions of six new species. ZooKeys 1240: 39–64. <https://doi.org/10.3897/zookeys.1240.147905>

Copyright: © Jinglin Li et al.

This is an open access article distributed under terms of the Creative Commons Attribution License (Attribution 4.0 International – CC BY 4.0).

Introduction

The family Pholcidae C.L. Koch, 1850 is a highly diverse group of spiders, with 97 genera and 2,024 species (WSC 2025). *Pholcus* Walckenaer, 1805 is the most diverse genus of the family and mainly distributed in the Afrotropical, Palaearctic, Indo-Malayan, and Australasian regions (e.g., Huber 2011; Yao and Li 2012, 2025; WSC 2025). This genus comprises 21 species groups and 409 species (Huber 2011; Huber et al. 2018; WSC 2025). China exhibits the highest species diversity of *Pholcus*. To date, 179 species have been recorded in China, which represent 44% of the genus (WSC 2025). Recently, a series of surveys of *Pholcus* have been carried out in China, based on morphological and molecular data. For instance, the extensive 2020 expedition into the Changbai Mountains brings the species count of *Pholcus* in the Changbai Mountains to 27 species, including 13 newly described species (Lu et al. 2021; Yao et al. 2021; Zhao et al. 2023a). The systematic investigation in the Yanshan-Taihang Mountains in 2021 recorded 36 *Pholcus* species, of which 14 species were new to science (Lu et al. 2022a, b). During an expedition in 2022 to the Lüliang Mountains, one known *Pholcus* species and

eight newly described species were reported (Zhao et al. 2023b). In 2022, a survey of the Qinling Mountains reported 20 *Pholcus* species, including nine newly described species (Yang et al. 2024a, b). Nevertheless, these efforts have primarily focused on northern and central China, with few reports in southern China.

Sichuan is located in the southwest of China. The eastern region of Sichuan, unlike the western part which borders the Tibetan Plateau, is dominated by the vast Sichuan Basin and its surrounding highlands. Previously, 13 species of *Pholcus* have been recorded in eastern Sichuan. In the present study, we report 13 species from eastern Sichuan, northeastern Yunnan, and western Guizhou, six of which are newly described species: five from eastern Sichuan and one from northeastern Yunnan (Fig. 1).

Materials and methods

All specimens were collected by X. Zhang, Y. Wang, and Q. Meng. Specimens of each new species were collected from a single population, and no obvious morphological differences were observed in either the males or the females. Moreover, the color patterns on their bodies are consistent between the two sexes. Therefore, we treat the males and females collected from a single population as one species. Specimens were examined and measured with a Leica M205 C stereomicroscope. Left male palps were photographed. Epigynes were

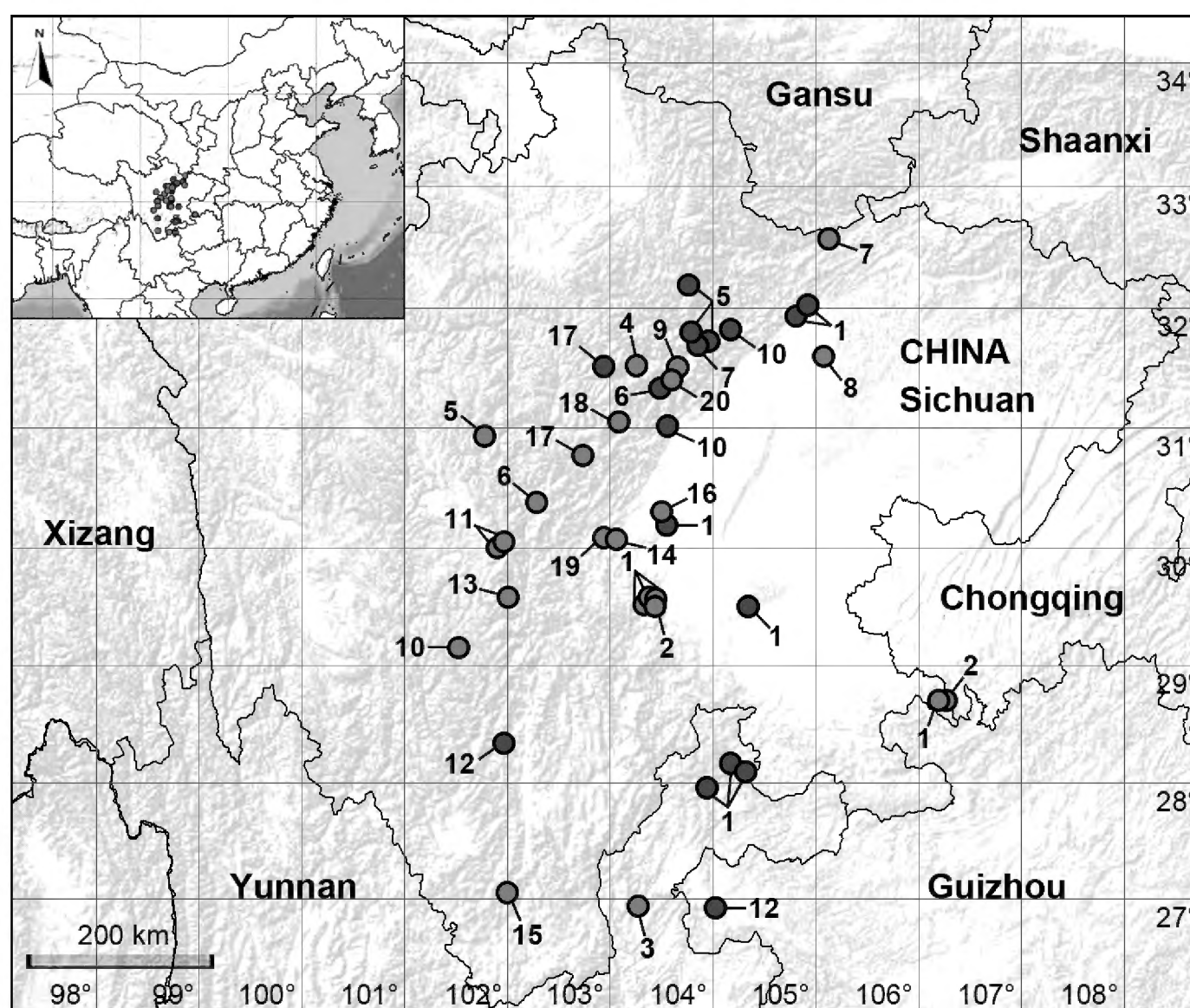


Figure 1. Distribution records of *Pholcus* spiders from the eastern of Sichuan and neighboring areas in this study. The *bidentatus* group: 1 *P. bidentatus* 2 *P. kimi* 3 *P. qiaojia* sp. nov.; the *crypticolens* group: 4 *P. aba* sp. nov. 5 *P. chang* 6 *P. ganziensis* 7 *P. manuli* 8 *P. spilis* 9 *P. wenchuan* sp. nov.; the *yichengicus* group: 10 *P. jiulong* 11 *P. kangding* 12 *P. kunming* 13 *P. luding* 14 *P. mengding* sp. nov. 15 *P. miyi* sp. nov. 16 *P. qingchengensis* 17 *P. qinghaiensis* 18 *P. taibaiensis* 19 *P. yaan* sp. nov. 20 *P. zhangae*. Blue, green, and red circles represent previously recorded species, species collected in this study, and new species, respectively.

photographed before dissection. Vulvae were photographed after treating them in a 10% warm solution of potassium hydroxide (KOH) to dissolve soft tissues. Images were captured with a Canon EOS 750D wide zoom digital camera (24.2 megapixels) mounted on the stereomicroscope mentioned above and assembled using Helicon Focus v. 3.10.3 image stacking software (Khmelik et al. 2005). All measurements are given in millimeters (mm). Leg measurements are shown as: total length (femur, patella, tibia, metatarsus, tarsus). Leg segments were measured on their dorsal side. The distribution map was generated with ArcGIS v. 10.2 (ESRI Inc.). The specimens studied are deposited in the College of Life Science, Shenyang Normal University (SYNU) in Liaoning, China.

Terminology and taxonomic descriptions follow Huber (2011) and Yao et al. (2015, 2021). The following abbreviations are used in the descriptions: **ALE** = anterior lateral eye, **AME** = anterior median eye, **PME** = posterior median eye, **L/d** = length/diameter ratio; used in the illustrations: **a** = appendix, **aa** = anterior arch, **b** = bulb, **da** = distal apophysis, **e** = embolus, **fa** = frontal apophysis, **kn** = knob, **pa** = proximo-lateral apophysis, **pp** = pore plate, **pr** = procursus, **u** = uncus.

DNA barcode sequences of new species were obtained. A partial fragment of the mitochondrial cytochrome oxidase subunit I (COI) gene was targeted using the following primers: forward: LCO1490 (5'-GGTCAACAAATCATAAAGATATTGG-3') and reverse: HCO2198 (5'-TAAACTTCAGGGTGACCAAAAAATCA-3') (Folmer et al. 1994). Additional information on extraction, amplification and sequencing procedures is provided in Yao et al. (2016).

Results

A total of 13 species from eastern Sichuan, northeastern Yunnan, and western Guizhou were identified, including six newly described species. Of the seven known species, *P. bidentatus* Zhu, Zhang, Zhang & Chen, 2005 is recorded from Yunnan for the first time and *P. kunming* Zhang & Zhu, 2009 is recorded from Guizhou and Sichuan for the first time. A list of known species is provided in Table 1 and descriptions of all the new species are provided below. Of the 13 previously recorded species from eastern Sichuan, we identified six from our collection. We did not collect seven previously recorded species of eastern Sichuan due to the selection of sampling sites: *P. kangding* Zhang & Zhu, 2009, *P. kimi* Song & Zhu, 1994, *P. luding* Tong & Li, 2010, *P. qingchengensis* Gao, Gao & Zhu, 2002, *P. spilis* Zhu & Gong, 1991, *P. taibaiensis* Wang & Zhu, 1992 and *P. zhangae* Zhang & Zhu, 2009. The distribution records of all the species above are provided in Fig. 1. One DNA barcode sequence was obtained from each new species and all sequences are deposited in GenBank. The voucher numbers, GenBank accession numbers and other related information are given in Table 2.

Taxonomic accounts

Family Pholcidae C.L. Koch, 1850

Subfamily Pholcinae C.L. Koch, 1850

Genus *Pholcus* Walckenaer, 1805

Type species. *Aranea phalangoides* Fuesslin, 1775.

Table 1. Information of the seven known species collected and identified.

Species	Voucher code	Collection locality
<i>bidentatus</i> group		
<i>P. bidentatus</i>	2 ♂ (SYNU-Ar00141F–42F) 1 ♀ (SYNU-Ar00143F)	Sichuan , Mianyang, Jiangyou, Zhonghua Town, Laojunshan Scenic Spot; 32.025833°N, 104.925833°E; 845 m; 14 May 2024
	1 ♂ (SYNU-Ar00144F) 2 ♀ (SYNU-Ar00145F–46F)	Sichuan , Mianyang, Jiangyou, Yongsheng Town, Xinbei Village; 31.944167°N, 104.809722°E; 639 m; 16 May 2024
	2 ♂ (SYNU-Ar00147F–48F) 1 ♀ (SYNU-Ar00149F)	Sichuan , Chengdu, Pujiang County, Kakadian, Jinma Village; 30.191920°N, 103.549838°E; 624 m; 26 May 2024
	1 ♂ (SYNU-Ar00150F) 1 ♀ (SYNU-Ar00151F)	Sichuan , Zigong, Cao County, Gaoshiti Forest Park; 29.504962°N, 104.345949°E; 622 m; 27 May 2024
	2 ♂ (SYNU-Ar00152F–53F) 2 ♀ (SYNU-Ar00154F–55F)	Yunnan* , Zhaotong, Yanjin County, Diaolouzi; 28.095434°N, 104.308418°E; 645 m; 27 May 2024
	1 ♂ (SYNU-Ar00156F) 2 ♀ (SYNU-Ar00157F–58F)	Yunnan* , Zhaotong, Yanjin County, Zhonghe Town, Aitian Village; 28.174544°N, 104.165321°E; 675 m; 28 May 2024
	2 ♂ (SYNU-Ar00159F–60F) 1 ♀ (SYNU-Ar00161F)	Yunnan* , Zhaotong, Dagan County, Xiaoguanxi Village; 27.965522°N, 103.936600°E; 537 m; 30 May 2024
<i>crypticolens</i> group		
<i>P. chang</i>	2 ♂ (SYNU-Ar00162F–63F) 1 ♀ (SYNU-Ar00164F)	Sichuan , Aba, Mao County, Chuanwen Road; 31.805000°N, 103.783889°E; 1570 m; 17 May 2024
	1 ♂ (SYNU-Ar00165F) 1 ♀ (SYNU-Ar00166F)	Sichuan , Aba, Songpan County, G213 Road; 32.191944°N, 103.756667°E; 2464 m; 17 May 2024
	1 ♂ (SYNU-Ar00167F) 1 ♀ (SYNU-Ar00168F)	Sichuan , Aba, Mao County, Mati Village; 31.731111°N, 103.952500°E; 1435 m; 18 May 2024
<i>P. ganziensis</i>	2 ♂ (SYNU-Ar00169F–70F) 1 ♀ (SYNU-Ar00171F)	Sichuan , Aba, Wenchuan County, Dayu Grange; 31.340115°N, 103.487172°E; 1177 m; 20 May 2024
<i>P. manueli</i>	1 ♂ (SYNU-Ar00172F) 1 ♀ (SYNU-Ar00173F)	Sichuan , Aba, Mao County, Chuanwen Road; 31.695000°N, 103.848056°E; 1536 m; 19 May 2024
<i>yichengicus</i> group		
<i>P. jiulong</i>	2 ♂ (SYNU-Ar00174F–75F) 2 ♀ (SYNU-Ar00176F–77F)	Sichuan , Mianyang, Beichuan County, Dunqing Road, Zaoerping; 31.826667°N, 104.163889°E; 881 m; 18 May 2024
	1 ♂ (SYNU-Ar00178F) 1 ♀ (SYNU-Ar00179F)	Sichuan , Duijiangyan, Houzhi Grange; 31.026629°N, 103.562174°E; 860 m; 20 May 2024
<i>P. kunming</i>	1 ♂ (SYNU-Ar00180F) 2 ♀ (SYNU-Ar00181F–82F)	Guizhou* , Bijie, Weining County, Zhaiga Village; 26.924964°N, 104.013934°E; 2292 m; 1 Jun. 2024
	2 ♂ (SYNU-Ar00183F–84F) 2 ♀ (SYNU-Ar00185F–86F)	Sichuan* , Liangshan, Mianning County, Lizhuang Town, Dishuiyan; 28.345710°N, 101.964906°E; 2618 m; 10 Jun. 2024
<i>P. qinghaiensis</i>	1 ♂ (SYNU-Ar00187F) 2 ♀ (SYNU-Ar00188F–89F)	Sichuan , Aba, Li County, Shiziping; 31.516888°N, 102.933251°E; 2350 m; 19 May 2024

* indicates new provincial records.

Table 2. Voucher specimen information.

New species	Voucher code	GenBank accession number	Sequence length	Collection locality
<i>P. aba</i> sp. nov.	W373 (SYNU-Ar00477)	PV494966	624 bp	Sichuan , Aba, Li County
<i>P. mengding</i> sp. nov.	W365 (SYNU-Ar00484)	PV494967	624 bp	Sichuan , Yaan, Yucheng District
<i>P. miyi</i> sp. nov.	W366 (SYNU-Ar00488)	PV494965	624 bp	Sichuan , Panzhihua, Miyi County
<i>P. qiaojia</i> sp. nov.	W361 (SYNU-Ar00472)	PV494963	624 bp	Yunnan , Zhaotong, Qiaojia County
<i>P. wenchuan</i> sp. nov.	W367 (SYNU-Ar00480)	PV494962	624 bp	Sichuan , Aba, Wenchuan County
<i>P. yaan</i> sp. nov.	W364 (SYNU-Ar00492)	PV494964	624 bp	Sichuan , Yaan, Lushan County

***Pholcus bidentatus* species group**

This species group was recognized by Huber (2011). It includes 36 previously described species and is distributed in southern China, as well as mainland Southeast Asia (e.g., Huber 2011; Dong et al. 2016a, b; Dong et al. 2017; Zhu et al. 2018; Lan et al. 2021). Among them, 18 species have been recorded from southern China. One species is newly described below.

***Pholcus qiaojia* Li, Li & Yao, sp. nov.**

<https://zoobank.org/938BAF51-927F-4AA0-8E9D-65BF5BAE1B7B>

Figs 2, 3, 14A

Type material. Holotype: China • ♂; Yunnan, Zhaotong, Qiaojia County, Laodian Town, Dingjia Village; 26.938345°N, 103.276833°E; alt. 1713 m; 2 Jun. 2024; X. Zhang, Y. Wang & Q. Meng leg.; SYNU-Ar00471. **Paratypes:** China • 1 ♂; same data as for the holotype; SYNU-Ar00472 • 1 ♀; same data as for the holotype; SYNU-Ar00473.

Etymology. The specific name refers to the type locality; noun in apposition.

Diagnosis. The new species resembles *P. bidentatus* Zhu, Zhang, Zhang & Chen, 2005 (Yao and Li 2012: 11, figs 33A–D, 34A–C; Huber 2011: 420, figs 1930, 1931, 1961, 1962, 2028–2033) by having similar uncus (Figs 3C, 14A) and epigyne (Fig. 3A), but can be distinguished by procursus with blunt distal apophysis (arrow 1 in Fig. 2C vs absent) and sclerotized sawtooth apophyses (arrow 1 in Fig. 2D vs absent), by male chelicerae with two pairs of frontal apophyses (fa in Fig. 3D vs absent), by appendix without angular median apophyses (a in Figs 3C, 14A vs with two), and by vulval pore plates 2× longer than wide (pp in Fig. 3B vs 3×).

Description. Male (holotype): Measurements: Total length 6.88 (6.99 with clypeus), carapace 1.62 long, 1.84 wide, opisthosoma 5.26 long, 1.54 wide. Leg I: 51.81 (13.46, 0.78, 12.18, 22.76, 2.63), leg II: 33.82 (9.42, 0.75, 8.40, 13.65, 1.60), leg III: 23.79 (6.64, 0.70, 5.90, 9.30, 1.25), leg IV: missing; tibia I L/d: 81. Eye interdistances and diameters: PME–PME 0.40, PME 0.20, PME–ALE 0.06, AME–AME 0.09, AME 0.09. Sternum width/length: 1.16/0.94.

Color: Carapace yellowish, with brown radiating marks; ocular area yellowish, with median and lateral brown bands; clypeus yellowish, with indistinct brown marks; sternum brown. Legs yellowish, but dark brown on patellae and whitish on distal parts of femora and tibiae, with darker rings on subdistal parts of femora and proximal and subdistal parts of tibiae. Opisthosoma yellowish, with dorsal and lateral brown spots.

Body: Habitus as in Fig. 3E, F; ocular area elevated, each eye triad on top of laterally directed eye-stalk.

Chelicerae: As in Fig. 3D, with pair of proximo-lateral apophyses, pair of distal apophyses, and two pairs of frontal apophyses.

Palp: As in Fig. 2A, B; trochanter with long (3× longer than wide), retrolaterally bulged ventral apophysis; femur with retrolatero-proximal protrusion (arrow 1 in Fig. 2B) and distinct ventral protrusion; procursus simple proximally but complex distally, with raised, prolatero-subdistal membranous edge bearing blunt distal apophysis (arrow 1 in Fig. 2C) with sclerotized sawtooth apophyses,

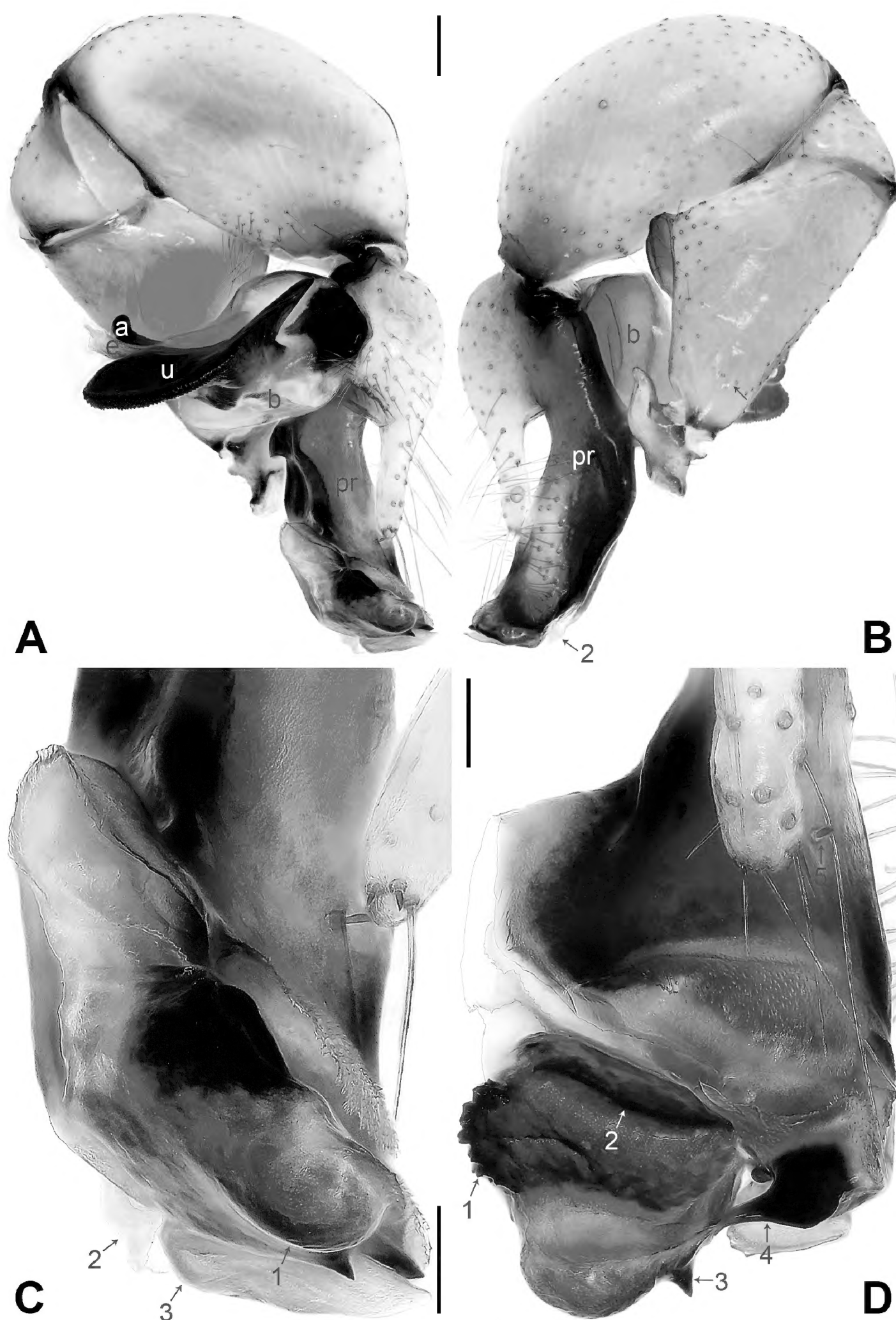


Figure 2. *Pholcus qiaojia* sp. nov., holotype male **A, B** palp (**A** prolateral view **B** retrolateral view, arrow 1 points at retrolatero-proximal protrusion, arrow 2 points at retrolatero-distal membranous process) **C, D** distal part of procursus (**C** prolateral view, arrow 1 points at blunt distal apophysis, arrow 2 points at retrolatero-distal membranous process, arrow 3 points at distal membranous process **D** dorsal view, arrow 1 points at sclerotized sawtooth apophyses, arrow 2 points at sclerotized flat apophysis, arrow 3 points at sclerotized pointed apophysis, arrow 4 points at sclerotized, proximally wide and distally pointed dorso-distal apophysis, arrow 5 points at dorsal spine). Abbreviations: a = appendix, b = bulb, e = embolus, pr = procursus, u = uncus. Scale bars: 0.20 (**A, B**); 0.10 (**C, D**).

sclerotized flat apophysis and sclerotized pointed apophysis (arrows 1–3 in Fig. 2D), retrolatero-distal membranous process (arrow 2 in Fig. 2B, C), distal membranous process (arrow 3 in Fig. 2C), sclerotized, proximally wide and distally pointed dorso-distal apophysis (arrow 4 in Fig. 2D), and strong dorsal

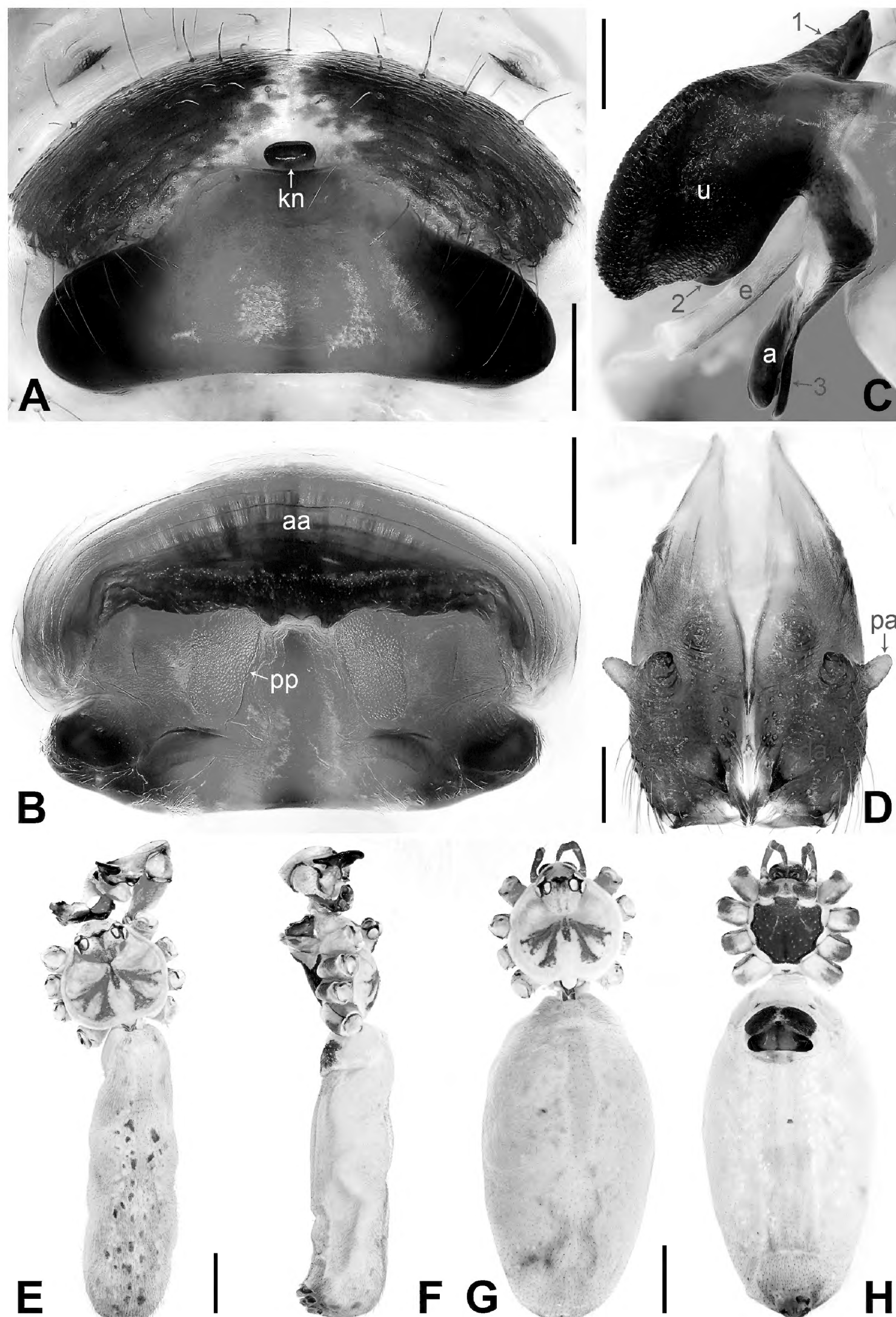


Figure 3. *Pholcus qiaoja* sp. nov., holotype (**D–F**) and paratype (**C**) males, paratype female (**A, B, G, H**) **A** epigyne, ventral view **B** vulva, dorsal view **C** bulbal apophyses, prolateral view, arrow 1 points at proximal apophysis, arrow 2 points at latero-median protrusion, arrow 3 points at slender subdistal branch **D** chelicerae, frontal view **E–H** habitus (**E, G** dorsal view **F** lateral view **H** ventral view). Abbreviations: a = appendix, aa = anterior arch, da = distal apophysis, e = embolus, fa = frontal apophysis, kn = knob, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.20 (**A–D**); 1.00 (**E–H**).

spine (arrow 5 in Fig. 2D); uncus with scales, proximal apophysis, and distinct latero-median protrusion (arrows 1, 2 in Figs 3C, 14A); appendix hooked, with slender subdistal branch (arrow 3 in Figs 3C, 14A); embolus weakly sclerotized, with some transparent distal projections (Figs 3C, 14A).

Legs: Retrolateral trichobothrium on tibia I at 2% proximally; legs with short vertical setae on tibiae, metatarsi, and tarsi; tarsus I with 42 distinct pseudosegments.

Female (paratype, SYNU-Ar00473): Similar to male, habitus as in Fig. 3G, H. Total length 6.46 (6.62 with clypeus), carapace 1.52 long, 1.70 wide, opisthosoma 4.94 long, 2.64 wide; leg I missing. Eye interdistances and diameters: PME–PME 0.25, PME 0.18, PME–ALE 0.04, AME–AME 0.04, AME 0.09. Sternum width/length: 1.10/1.03. Ocular area without eye-stalks. Epigyne nearly trapezoidal, laterally strongly sclerotized, with knob (Fig. 3A). Vulva with curved, posteriorly sclerotized anterior arch and pair of nearly quadrilateral pore plates (Fig. 3B).

Variation. Unknown. Leg I missing in paratype male (SYNU-Ar00472).

Habitat. Underside of overhang on rocky cliffs in the mountain area.

Distribution. China (Yunnan, type locality; Fig. 1).

Pholcus crypticolens species group

This species group was recognized by Huber (2011). It includes 11 previously described species and is mainly distributed in East Asia (e.g., Huber 2011; Yao and Li 2012; Dong et al. 2016b). Among them, 10 species have been recorded from China. Two species are newly described below.

Pholcus aba Li, Li & Yao, sp. nov.

<https://zoobank.org/45EE1D92-D2A2-4F24-AF74-7AA6CD0B35BF>

Figs 4, 5, 14B

Type material. Holotype: China • ♂; Sichuan, Aba, Li County, Xindianzi; 31.528726°N, 103.254276°E; alt. 1606 m; 19 May 2024; X. Zhang, Y. Wang & Q. Meng leg.; SYNU-Ar00474. **Paratypes:** China • 1 ♂; same data as for the holotype; SYNU-Ar00475 • 2 ♀; same data as for the holotype; SYNU-Ar00476–77.

Etymology. The specific name refers to the type locality; noun in apposition.

Diagnosis. The new species resembles *P. langensis* Yao & Li, 2016 (Dong et al. 2016b: 8, figs 5A–D, 6A–H) by having similar uncus (Figs 5C, 14B), male chelicerae (Fig. 5D) and epigyne (Fig. 5A), but can be distinguished by procurus with raised, sclerotized, swollen prolatero-subdistal edge (arrow 6 in Fig. 4D vs prolatero-subdistal edge not swollen), sclerotized retrolatero-distal apophysis (arrow 2 in Fig. 4B; arrow 1 in Fig. 4D vs absent) and distal membranous process without sawteeth (arrow 2 in Fig. 4C vs present), by appendix without median apophyses (a in Figs 5C, 14B vs with sawtooth median apophyses), and by vulval pore plates longer than wide (pp in Fig. 5B vs wider than long).

Description. Male (holotype): Measurements: Total length 3.90 (4.03 with clypeus), carapace 1.12 long, 1.25 wide, opisthosoma 2.78 long, 1.24 wide. Leg I: 24.32 (6.28, 0.52, 6.41, 9.23, 1.88), leg II: 16.59 (4.70, 0.51, 4.25, 6.03, 1.10), leg III: 12.47 (3.72, 0.49, 3.09, 4.35, 0.82), leg IV: 15.81 (4.80, 0.50, 4.16, 5.32, 1.03); tibia I L/d: 51. Eye interdistances and diameters: PME–PME 0.20, PME 0.13, PME–ALE 0.03, AME–AME 0.04, AME 0.07. Sternum width/length: 0.89/0.74.

Color: Carapace yellowish, with median brown marks and marginal brown bands; ocular area yellowish; clypeus yellowish, with brown marks; sternum brown. Legs yellowish, but brownish on patellae and whitish on distal parts of femora and tibiae, with darker rings on subdistal parts of femora and

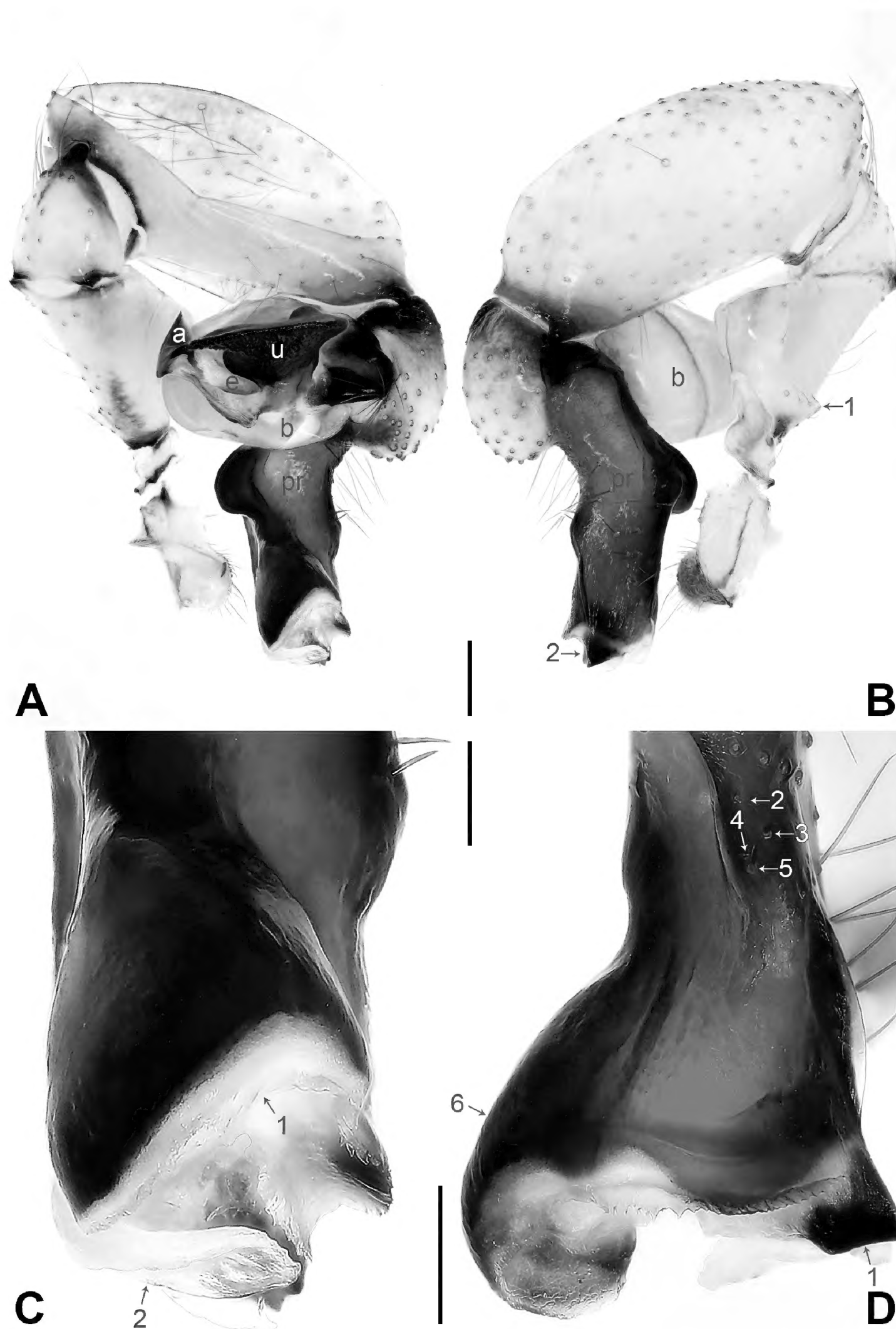


Figure 4. *Pholcus aba* sp. nov., holotype male **A, B** palp (**A** prolateral view **B** retrolateral view, arrow 1 points at retrolatero-proximal protrusion, arrow 2 points at sclerotized retrolatero-distal apophysis) **C, D** distal part of procursus (**C** prolateral view, arrow 1 points at membranous part, arrow 2 points at distal membranous process **D** dorsal view, arrow 1 points at sclerotized retrolatero-distal apophysis, arrows 2–5 point at dorsal spines, arrow 6 points at swollen prolatero-subdistal edge). Abbreviations: a = appendix, b = bulb, e = embolus, pr = procursus, u = uncus. Scale bars: 0.20 (**A, B**); 0.10 (**C, D**).

proximal and subdistal parts of tibiae. Opisthosoma yellowish, with light dorsal and lateral spots.

Body: Habitus as in Fig. 5E, F; ocular area elevated, without eye-stalks.

Chelicerae: As in Fig. 5D, with pair of proximo-lateral apophyses, pair of distal apophyses with two teeth each, and pair of frontal apophyses.

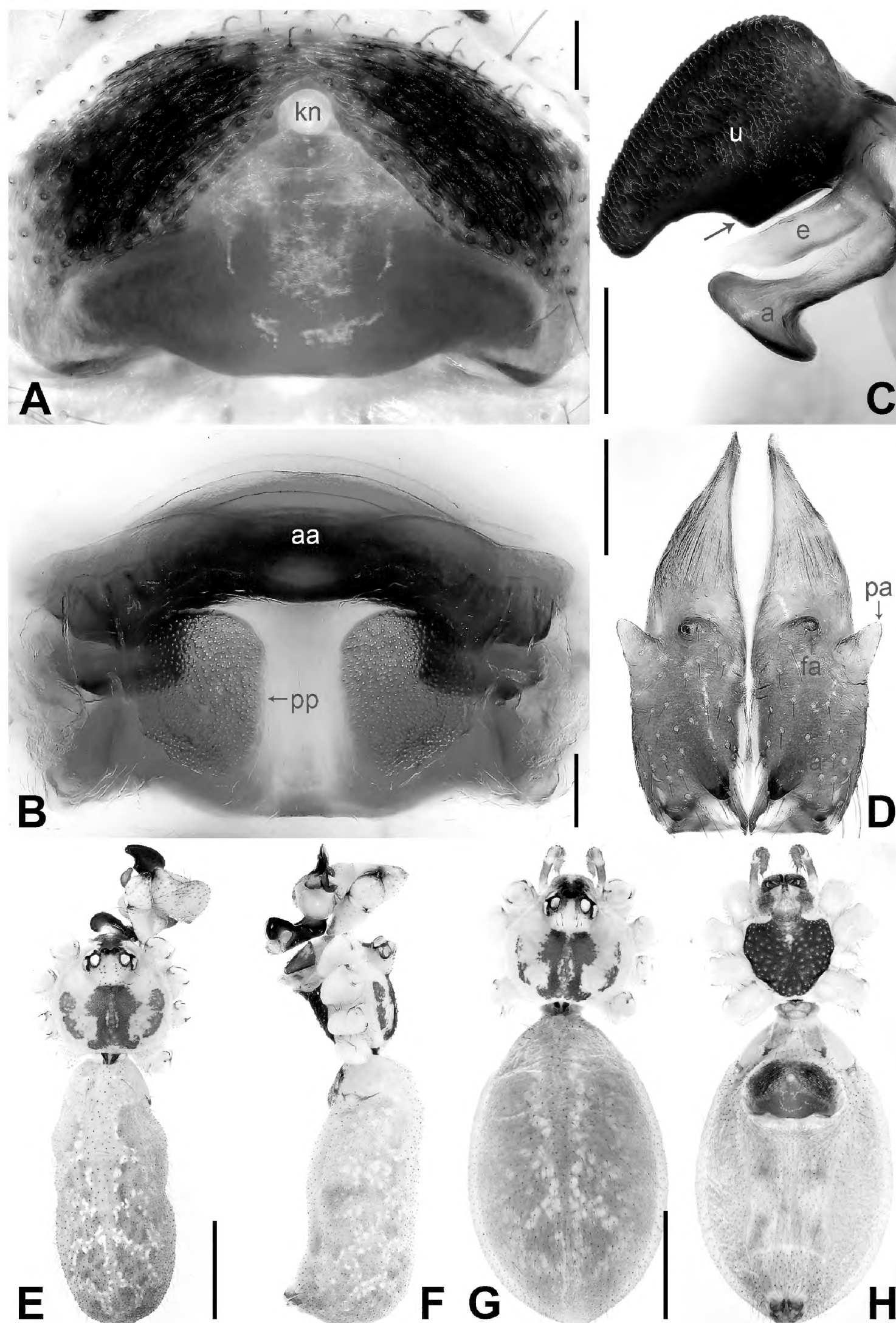


Figure 5. *Pholcus aba* sp. nov., holotype male (C–F) and paratype female (A, B, G, H) **A** epigyne, ventral view **B** vulva, dorsal view **C** bulbal apophyses, prolateral view, arrow points at latero-median protrusion **D** chelicerae, frontal view **E–H** habitus (**E**, **G** dorsal view **F** lateral view **H** ventral view). Abbreviations: a = appendix, aa = anterior arch, da = distal apophysis, e = embolus, fa = frontal apophysis, kn = knob, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.10 (A, B); 0.20 (C, D); 1.00 (E–H).

Palp: As in Fig. 4A, B; trochanter with long (3× longer than wide), retrolaterally strongly bulged ventral apophysis; femur with retrolatero-proximal protrusion (arrow 1 in Fig. 4B) and distinct ventral protrusion; procursus simple proximally but complex distally, with raised, sclerotized, swollen prolatero-subdistal edge bearing

membranous part (arrow 6 in Fig. 4D; arrow 1 in Fig. 4C), distal membranous process (arrow 2 in Fig. 4C), sclerotized retrolatero-distal apophysis (arrow 1 in Fig. 4D; arrow 2 in Fig. 4B), and one slender and three strong dorsal spines (arrows 2–5 in Fig. 4D); uncus with scales, proximal apophysis, and distinct latero-median protrusion (arrow in Fig. 5C; arrows 1, 2 in Fig. 14B); appendix T-shaped (Figs 5C, 14B); embolus weakly sclerotized, with some transparent distal projections (Figs 5C, 14B).

Legs: Retrolateral trichobothrium on tibia I at 6% proximally; legs with short vertical setae on tibiae, metatarsi, and tarsi; tarsus I with 27 distinct pseudosegments.

Female (paratype, SYNU-Ar00476): Similar to male, habitus as in Fig. 5G, H. Total length 4.05 (4.18 with clypeus), carapace 1.08 long, 1.25 wide, opisthosoma 2.97 long, 1.82 wide; tibia I: 5.96; tibia I L/d: 46. Eye interdistances and diameters: PME–PME 0.17, PME 0.13, PME–ALE 0.03, AME–AME 0.04, AME 0.06. Sternum width/length: 0.82/0.76. Epigyne nearly triangular, laterally strongly sclerotized, with knob (Fig. 5A). Vulva with curved, posteriorly sclerotized anterior arch and pair of nearly round pore plates (Fig. 5B).

Variation. Tibia I in paratype male (SYNU-Ar00475): 6.92. Tibia I in another paratype female (SYNU-Ar00477): 6.41.

Habitat. Underside of overhang on rocky cliffs in the mountain area.

Distribution. China (Sichuan, type locality; Fig. 1).

***Pholcus wenchuan* Li, Li & Yao, sp. nov.**

<https://zoobank.org/EE68B9CF-B08C-4661-9480-4A84C5ED8062>

Figs 6, 7, 14C

Type material. Holotype: China • ♂; Sichuan, Aba, Wenchuan County, Qingpo Village; 31.512222°N, 103.661667°E; alt. 1389 m; 19 May 2024; X. Zhang, Y. Wang & Q. Meng leg.; SYNU-Ar00478. **Paratypes:** China • 1 ♂; same data as for the holotype; SYNU-Ar00479 • 1 ♀; same data as for the holotype; SYNU-Ar00480.

Etymology. The specific name refers to the type locality; noun in apposition.

Diagnosis. The new species resembles *P. ganziensis* Yao & Li, 2012 (Yao and Li 2012: 16, figs 65A–D, 66A–E, 67A–D, 68A–D) by having similar bulbal apophyses (Figs 7C, 14C), male chelicerae (Fig. 7D) and epigyne (Fig. 7A), but can be distinguished by procursus with curved and elongated dorso-distal sclerite (arrow 4 in Fig. 6C vs flat, nearly angular, and not elongated) and raised, sclerotized prolatero-subdistal edge bearing membranous part (arrow 1 in Fig. 6C vs prolatero-subdistal edge without membranous part) and by vulval pore plates nearly quadrilateral (pp in Fig. 7B vs nearly round).

Description. Male (holotype): Measurements: Total length 3.66 (3.80 with clypeus), carapace 1.16 long, 1.25 wide, opisthosoma 2.50 long, 1.15 wide. Leg I: 25.27 (6.60, 0.52, 6.54, 9.81, 1.80), leg II: 17.19 (4.80, 0.49, 4.40, 6.35, 1.15), leg III: 12.76 (3.80, 0.48, 3.09, 4.50, 0.89), leg IV: 16.90 (5.00, 0.51, 4.40, 5.96, 1.03); tibia I L/d: 50. Eye interdistances and diameters: PME–PME 0.16, PME 0.14, PME–ALE 0.03, AME–AME 0.04, AME 0.06. Sternum width/length: 0.88/0.79.

Color: Carapace yellowish, with median brown marks and marginal brown bands; ocular area yellowish; clypeus yellowish, with brown marks; sternum brown. Legs yellowish, but brownish on patellae and whitish on distal parts of femora and tibiae, with darker rings on subdistal parts of femora and proximal and subdistal parts of tibiae. Opisthosoma yellowish, with light dorsal and lateral spots.

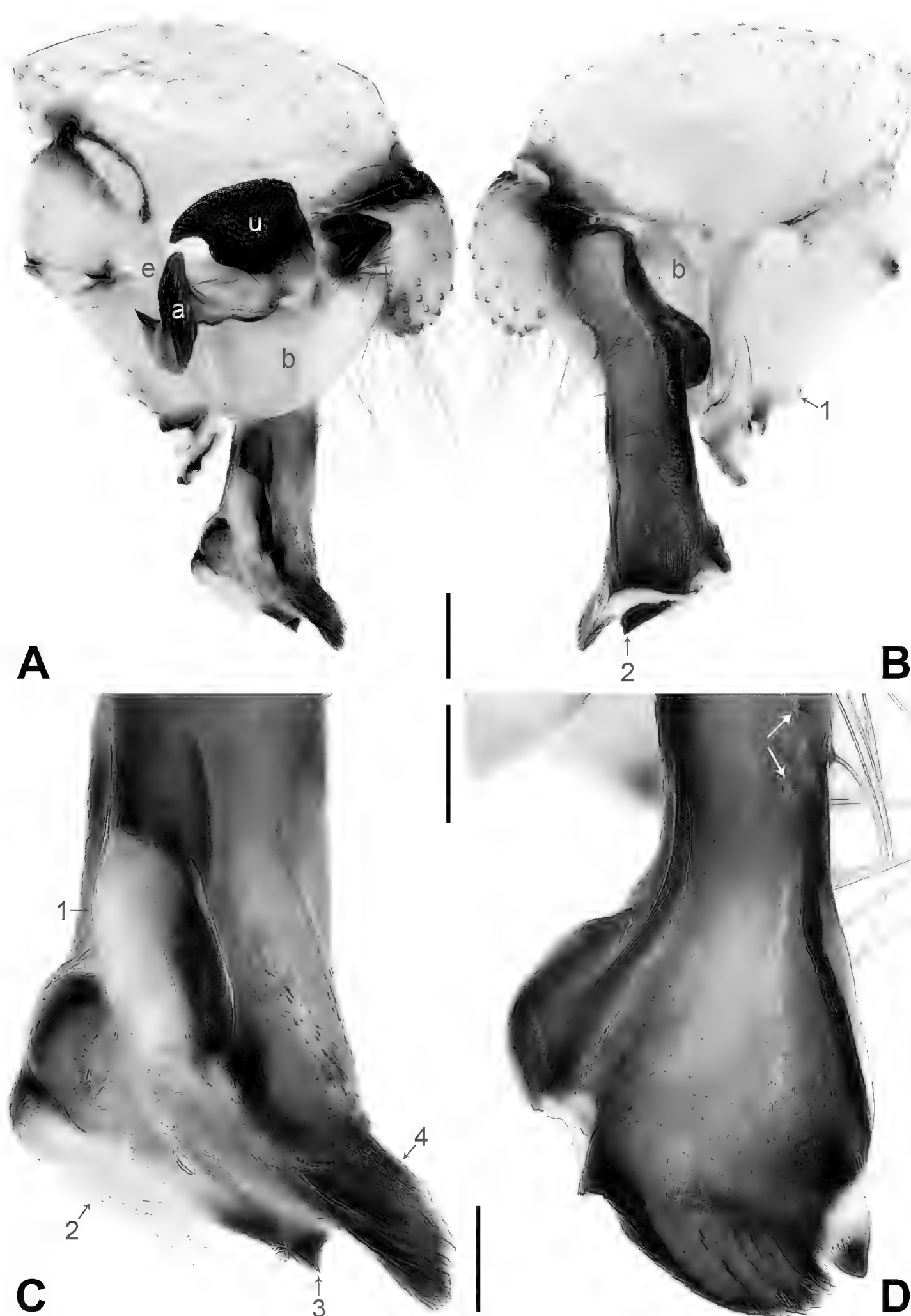


Figure 6. *Pholcus wenchuan* sp. nov., holotype male **A, B** palp (**A** prolateral view **B** retrolateral view, arrow 1 points at retrolatero-proximal protrusion, arrow 2 points at sclerotized retrolatero-distal apophysis) **C, D** distal part of procursus (**C** prolateral view, arrow 1 points at membranous part, arrow 2 points at distal membranous process, arrow 3 points at sclerotized retrolatero-distal apophysis, arrow 4 points at curved dorso-distal sclerite **D** dorsal view, arrows point at dorsal spines). Abbreviations: a = appendix, b = bulb, e = embolus, pr = procursus, u = uncus. Scale bars: 0.20 (**A, B**); 0.10 (**C, D**).

Body: Habitus as in Fig. 7E, F; ocular area elevated, without eye-stalks.

Chelicerae: As in Fig. 7D, with pair of proximo-lateral apophyses, pair of distal apophyses with two teeth each, and pair of frontal apophyses.

Palp: As in Fig. 6A, B; trochanter with long (4× longer than wide), retrolaterally strongly bulged ventral apophysis; femur with retrolatero-proximal protrusion

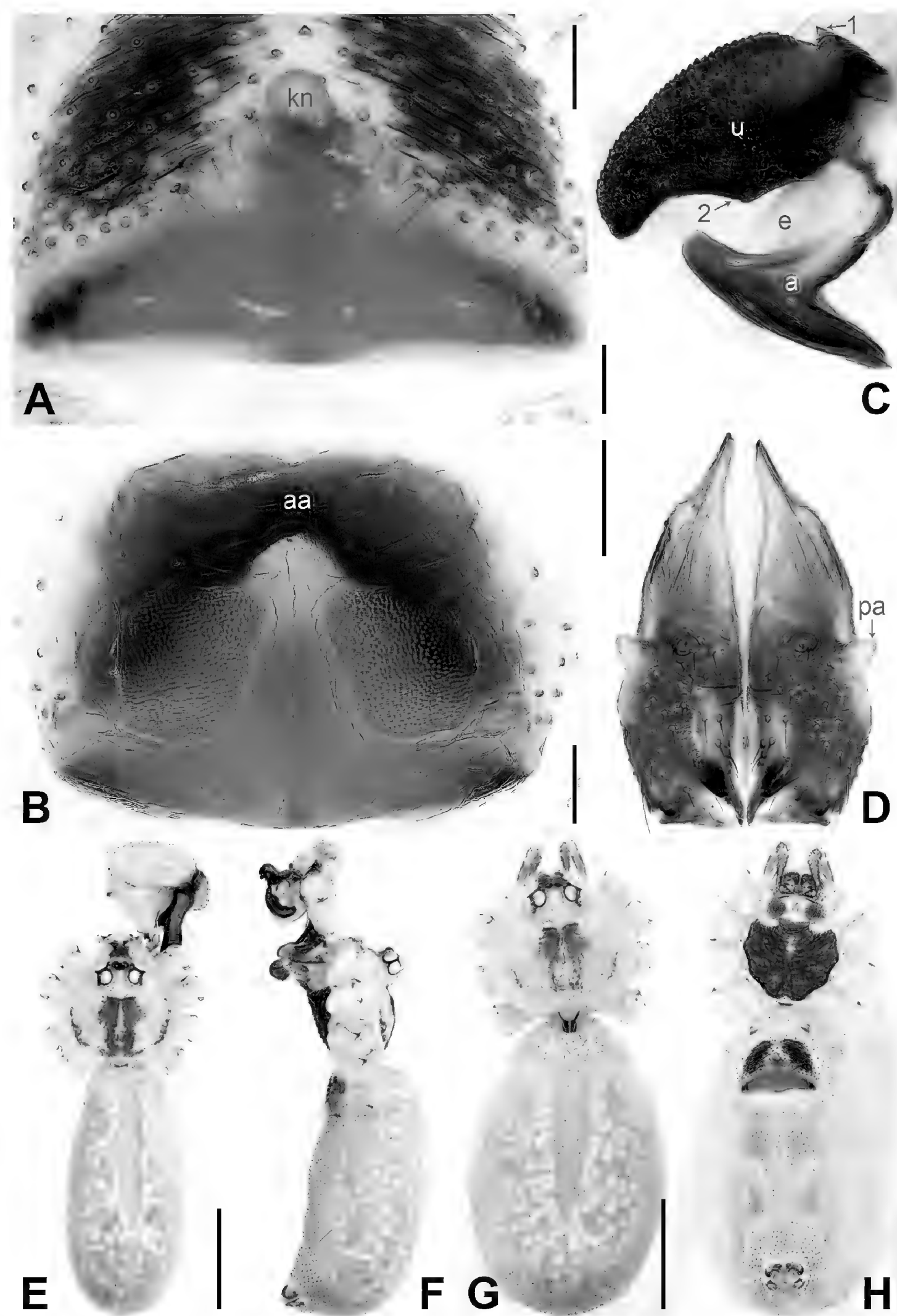


Figure 7. *Pholcus wenchuan* sp. nov., holotype male (**C–F**) and paratype female (**A, B, G, H**) **A** epigyne, ventral view **B** vulva, dorsal view **C** bulbal apophyses, prolateral view, arrow 1 points at proximal apophysis, arrow 2 points at latero-median protrusion **D** chelicerae, frontal view **E–H** habitus (**E, G** dorsal view **F** lateral view **H** ventral view). Abbreviations: a = appendix, aa = anterior arch, da = distal apophysis, e = embolus, fa = frontal apophysis, kn = knob, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.10 (**A–C**); 0.20 (**D**); 1.00 (**E–H**).

(arrow 1 in Fig. 6B) and distinct ventral protrusion; procursus simple proximally but complex distally, with raised, sclerotized prolatero-subdistal edge bearing membranous part (arrow 1 in Fig. 6C), distal membranous process (arrow 2 in Fig. 6C), sclerotized retrolatero-distal apophysis (arrow 3 in Fig. 6C; arrow 2 in Fig. 6B), curved dorso-distal sclerite (arrow 4 in Fig. 6C), and two strong

dorsal spines (arrows in Fig. 6D); uncus with scales, proximal apophysis, and distinct latero-median protrusion (arrows 1, 2 in Figs 7C, 14C); appendix T-shaped (Figs 7C, 14C); embolus weakly sclerotized, with some transparent distal projections (Figs 7C, 14C).

Legs: Retrolateral trichobothrium on tibia I at 6% proximally; legs with short vertical setae on tibiae, metatarsi, and tarsi; tarsus I with 35 distinct pseudosegments.

Female (paratype, SYNU-Ar00480): Similar to male, habitus as in Fig. 7G, H. Total length 3.92 (4.06 with clypeus), carapace 1.20 long, 1.33 wide, opisthosoma 2.72 long, 1.90 wide; tibia I: 5.90; tibia I L/d: 49. Eye interdistances and diameters: PME–PME 0.16, PME 0.13, PME–ALE 0.03, AME–AME 0.03, AME 0.04. Sternum width/length: 0.84/0.70. Epigyne nearly triangular, laterally strongly sclerotized, with knob (Fig. 7A). Vulva with curved, sclerotized anterior arch and pair of nearly quadrilateral pore plates (Fig. 7B).

Variation. Unknown. Leg I missing in paratype male (SYNU-Ar00479).

Habitat. Underside of overhang on rocky cliffs in the mountain area.

Distribution. China (Sichuan, type locality; Fig. 1).

Pholcus yichengicus species group

This species group was recognized by Huber (2011). It includes 48 previously described species and is mainly distributed in central and southern China, as well as northern Thailand (e.g., Huber 2011; Zhu et al. 2018; Lu et al. 2022b; Li et al. 2024; Yang et al. 2024a, b). Among them, 44 species have been recorded from China. Three species are newly described below.

Pholcus mengding Li, Li & Yao, sp. nov.

<https://zoobank.org/89E415FB-47EA-444E-9A95-32622D7AF360>

Figs 8, 9, 14D

Type material. Holotype: China • ♂; Sichuan, Yaan, Yucheng District, Mengding-shan Scenic Spot; 30.075869°N, 103.052207°E; alt. 982 m; 23 May 2024; X. Zhang, Y. Wang & Q. Meng leg.; SYNU-Ar00481. **Paratypes:** China • 1 ♂; same data as for the holotype; SYNU-Ar00482 • 2 ♀; same data as for the holotype; SYNU-Ar00483–84.

Etymology. The specific name refers to the type locality; noun in apposition.

Diagnosis. The new species resembles *P. yaan* sp. nov. (Figs 12A–D, 13A–H, 14F) by having similar uncus (Figs 9C, 14D), male chelicerae (Fig. 9D) and epigyne (Fig. 9A), but can be distinguished by prolatero-subdistal membranous edge of procurus laterally blunt (arrow 1 in Fig. 8D vs laterally pointed), by appendix with curved subdistal branch (arrow 3 in Fig. 9C, arrow 4 in Fig. 14D vs absent), and by vulval pore plates nearly elliptic (2× longer than wide, pp in Fig. 9B vs nearly round).

Description. Male (holotype): Measurements: Total length 5.08 (5.28 with clypeus), carapace 1.44 long, 1.66 wide, opisthosoma 3.64 long, 1.50 wide. Leg I: 49.94 (12.82, 0.71, 12.50, 21.35, 2.56), leg II: 32.27 (8.85, 0.67, 8.21, 12.82, 1.72), leg III: 22.07 (6.41, 0.64, 5.39, 8.33, 1.30), leg IV: 29.16 (8.33, 0.65, 7.24, 11.54, 1.40); tibia I L/d: 83. Eye interdistances and diameters: PME–PME 0.32, PME 0.17, PME–ALE 0.05, AME–AME 0.08, AME 0.08. Sternum width/length: 1.03/0.99.

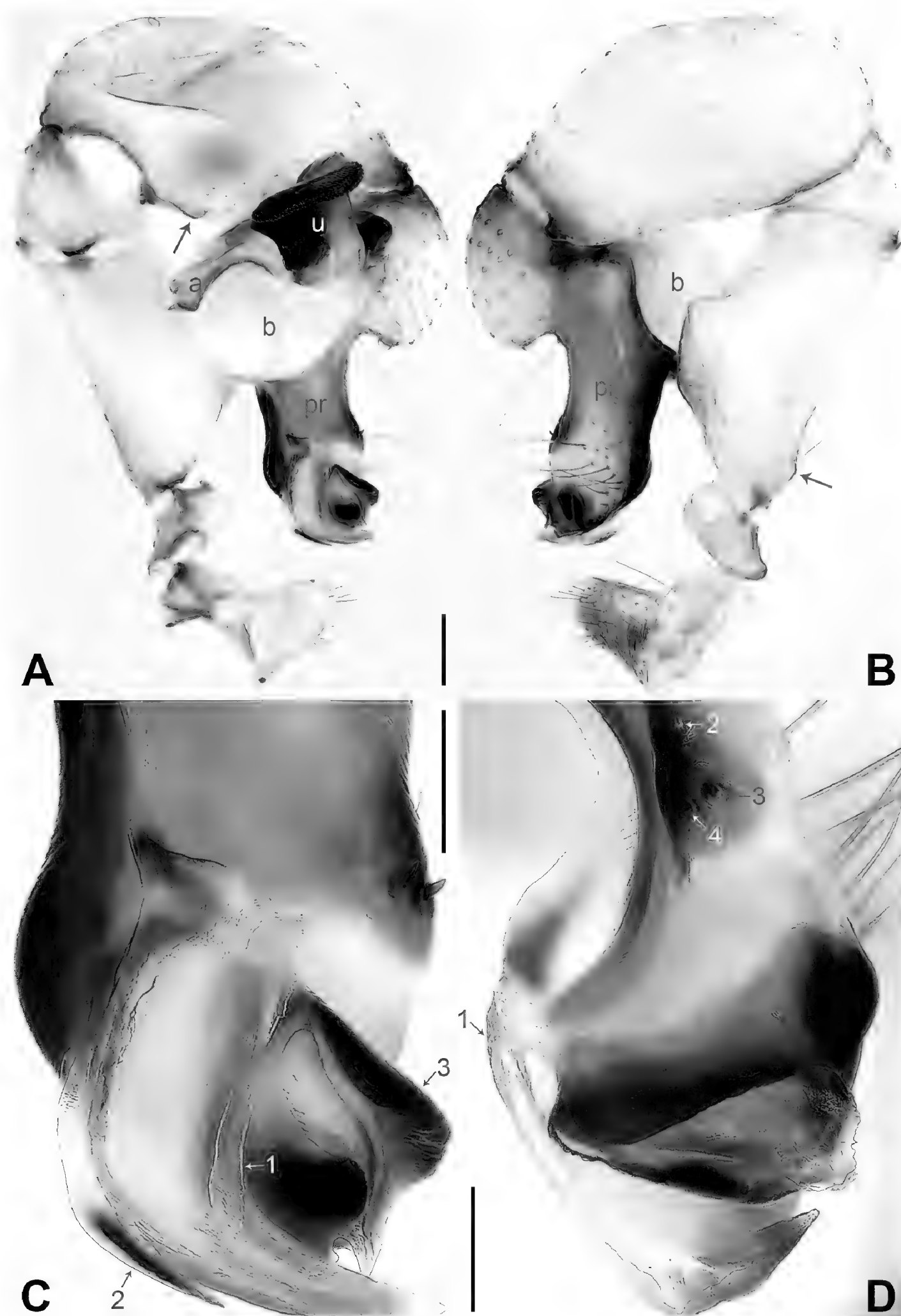


Figure 8. *Pholcus mengding* sp. nov., holotype male **A, B** palp (**A** prolateral view, arrow points at prolatero-ventral protrusion **B** retrolateral view, arrow points at retrolatero-proximal protrusion) **C, D** distal part of procursus (**C** prolateral view, arrow 1 points at distal membranous process, arrow 2 points at sclerotized part, arrow 3 points at sclerotized dorso-subdistal apophysis **D** dorsal view, arrow 1 points at laterally blunt prolatero-subdistal membranous edge, arrows 2–4 point at dorsal spines). Abbreviations: a = appendix, b = bulb, e = embolus, pr = procursus, u = uncus. Scale bars: 0.20 (**A, B**); 0.10 (**C, D**).

Color: Carapace yellowish, with brown radiating marks and marginal brown bands; ocular area brownish, with median brown band; clypeus brown; sternum yellowish, with brown marks. Legs yellowish, but dark brown on patellae and whitish on distal parts of femora and tibiae, with darker rings on subdistal parts of femora and proximal and subdistal parts of tibiae. Opisthosoma yellowish, with dorsal and lateral brown spots.

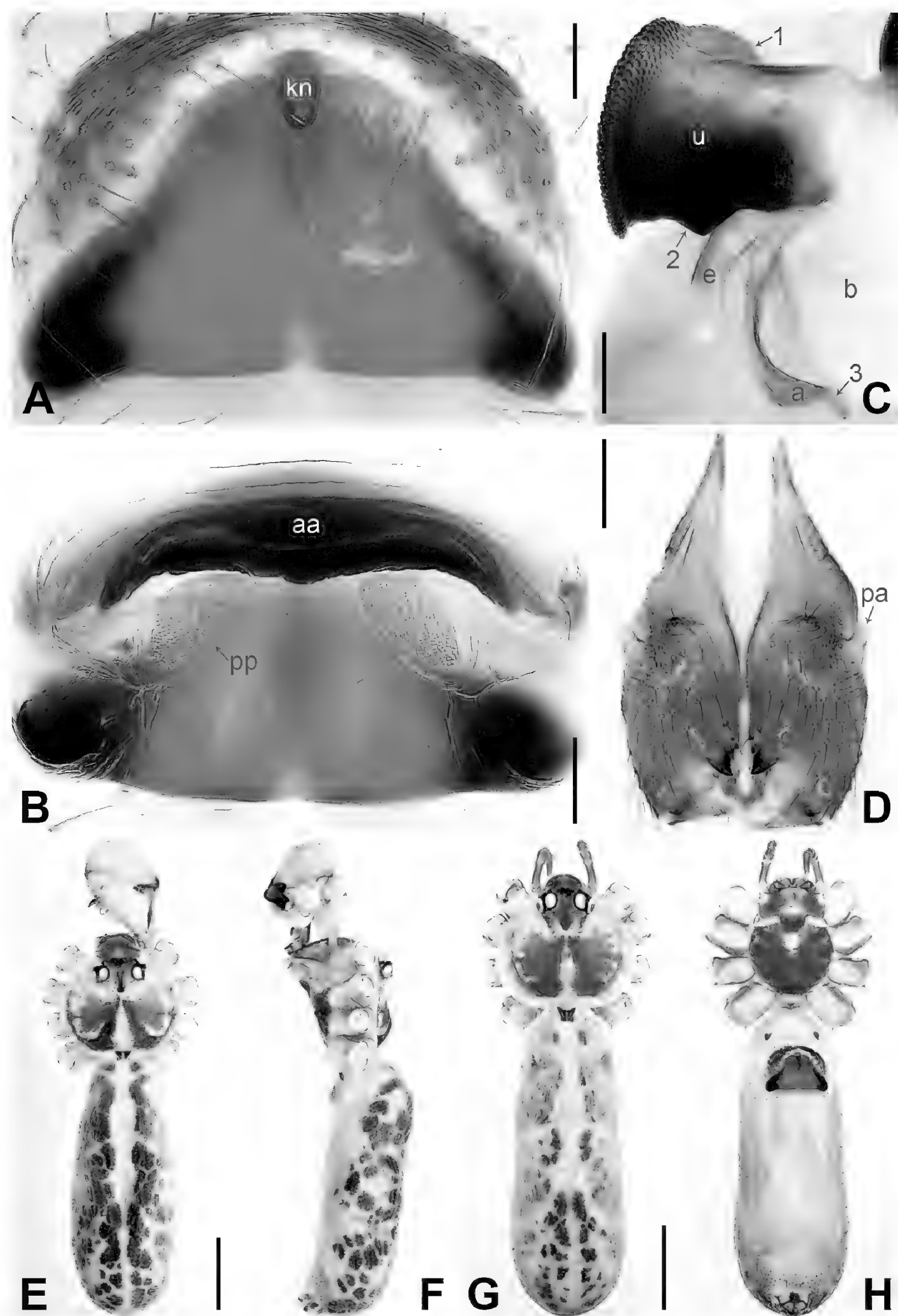


Figure 9. *Pholcus mengding* sp. nov., holotype male (**C–F**) and paratype female (**A, B, G, H**) **A** epigyne, ventral view **B** vulva, dorsal view **C** bulbal apophyses, prolateral view, arrow 1 points at proximal apophysis, arrow 2 points at latero-medial protrusion, arrow 3 points at curved subdistal branch **D** chelicerae, frontal view **E–H** habitus (**E, G** dorsal view **F** lateral view **H** ventral view). Abbreviations: a = appendix, aa = anterior arch, b = bulb, da = distal apophysis, e = embolus, fa = frontal apophysis, kn = knob, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.10 (**A–C**); 0.20 (**D**); 1.00 (**E–H**).

Body: Habitus as in Fig. 9E, F; ocular area elevated, each eye triad on top of laterally directed eye-stalk.

Chelicerae: As in Fig. 9D, with pair of proximo-lateral apophyses, pair of distal apophyses with two teeth each, and pair of frontal apophyses.

Palp: As in Fig. 8A, B; trochanter with long (2× longer than wide), retrolaterally strongly bulged ventral apophysis; femur with retrolatero-proximal protrusion

(arrow in Fig. 8B) and distinct ventral protrusion; tibia with prolatero-ventral protrusion (arrow in Fig. 8A); procursus simple proximally but complex distally, with raised, prolatero-subdistal membranous edge bearing distal membranous process (arrow 1 in Fig. 8C), distal membranous process bearing sclerotized part (arrow 2 in Fig. 8C), sclerotized dorso-subdistal apophysis (arrow 3 in Fig. 8C), and one slender and two strong dorsal spines (arrows 2–4 in Fig. 8D); uncus with scaly edge, proximal apophysis, and distinct latero-median protrusion (arrows 1, 2 in Figs 9C, 14D); appendix hooked, with curved subdistal branch (arrow 3 in Fig. 9C; arrows 3, 4 in Fig. 14D); embolus weakly sclerotized, with some transparent distal projections (Figs 9C, 14D).

Legs: Retrolateral trichobothrium on tibia I at 2% proximally; legs with short vertical setae on tibiae, metatarsi, and tarsi; tarsus I with 34 distinct pseudosegments.

Female (paratype, SYNU-Ar00483): Similar to male, habitus as in Fig. 9G, H. Total length 5.02 (5.22 with clypeus), carapace 1.42 long, 1.66 wide, opisthosoma 3.60 long, 1.34 wide; tibia I: 8.91; tibia I L/d: 64. Eye interdistances and diameters: PME–PME 0.22, PME 0.17, PME–ALE 0.05, AME–AME 0.06, AME 0.08. Sternum width/length: 1.01/0.93. Ocular area with median and lateral brown bands, without eye-stalks. Epigyne nearly trapezoidal, laterally strongly sclerotized, with knob (Fig. 9A). Vulva with curved, posteriorly sclerotized anterior arch and pair of nearly elliptic pore plates (Fig. 9B).

Variation. Tibia I in paratype male (SYNU-Ar00482): 11.67. Tibia I in another paratype female (SYNU-Ar00484): 8.40.

Habitat. Underside of overhang on rocky cliffs in the mountain area.

Distribution. China (Sichuan, type locality; Fig. 1).

***Pholcus miyi* Li, Li & Yao, sp. nov.**

<https://zoobank.org/1CE5EE1D-9465-4006-8574-3F3BAB530911>

Figs 10, 11, 14E

Type material. Holotype: China • ♂; Sichuan, Panzhihua, Miyi County, Puwei Town, Pengjiayakou Village; 27.060020°N, 102.000282°E; alt. 2464 m; 5 Jun. 2024; X. Zhang, Y. Wang & Q. Meng leg.; SYNU-Ar00485. **Paratypes:** China • 1 ♂; same data as for the holotype; SYNU-Ar00486 • 2 ♀; same data as for the holotype; SYNU-Ar00487–88.

Etymology. The specific name refers to the type locality; noun in apposition.

Diagnosis. The new species resembles *P. luding* Tong & Li, 2010 (Tong and Li 2010: 47, figs 2J–L, Q, 11A–F) by having similar uncus (Figs 11C, 14E), male chelicerae (Fig. 11D) and epigyne (Fig. 11A), but can be distinguished by procursus with sclerotized pointed subdistal apophysis (arrow 1 in Fig. 10C vs absent) and sawtooth subdistal membranous process (arrow 2 in Fig. 10C vs absent), by appendix without bifurcated median apophysis (a in Figs 11C, 14E vs present), and by vulval pore plates 3× longer than wide (pp in Fig. 11B vs 2×).

Description. Male (holotype): Measurements: Total length 3.84 (4.05 with clypeus), carapace 1.06 long, 1.31 wide, opisthosoma 2.78 long, 1.27 wide. Leg I: 36.66 (9.30, 0.58, 9.00, 15.58, 2.20), leg II: 23.31 (6.48, 0.54, 5.58, 9.23, 1.48), leg III: 15.19 (4.55, 0.51, 3.52, 5.51, 1.10), leg IV: 20.00 (5.77, 0.52, 4.80, 7.65, 1.26); tibia I L/d: 75. Eye interdistances and diameters: PME–PME 0.20, PME 0.14, PME–ALE 0.05, AME–AME 0.04, AME 0.10. Sternum width/length: 0.81/0.75.

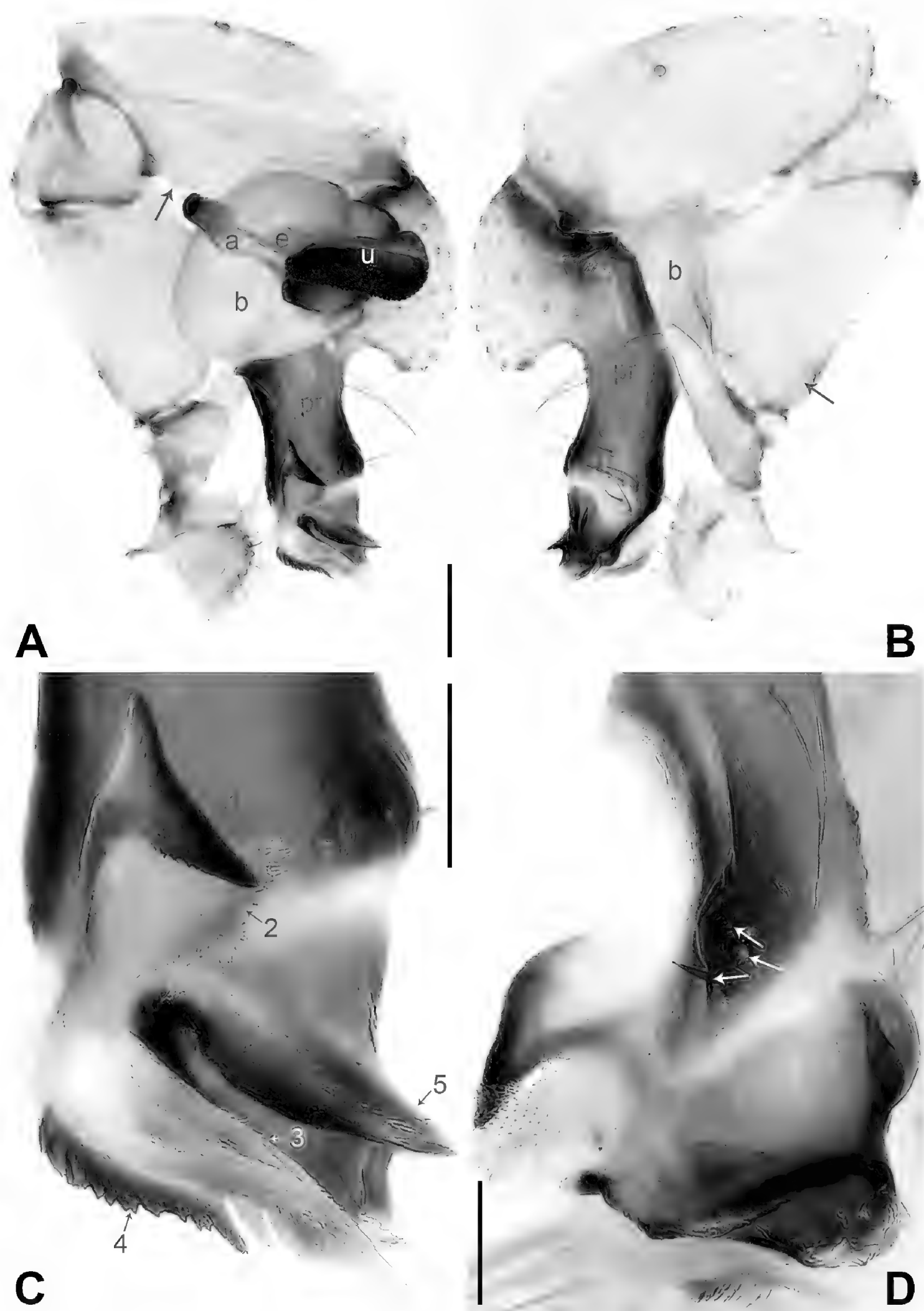


Figure 10. *Pholcus miyi* sp. nov., holotype male **A, B** palp (**A** prolateral view, arrow points at prolatero-ventral protrusion **B** retrolateral view, arrow points at retrolatero-proximal protrusion) **C, D** distal part of procursus (**C** prolateral view, arrow 1 points at sclerotized pointed subdistal apophysis, arrow 2 points at sawtooth subdistal membranous process, arrow 3 points at distal membranous process, arrow 4 points at sawtooth distal apophysis, arrow 5 points at dorso-subdistal sclerite **D** dorsal view, arrows point at dorsal spines). Abbreviations: a = appendix, b = bulb, e = embolus, pr = procursus, u = uncus. Scale bars: 0.20 (**A, B**); 0.10 (**C, D**).

Color: Carapace yellowish, with brown radiating marks and marginal brown bands; ocular area yellowish, with median and lateral brown bands; clypeus brown; sternum yellowish, with brown marks. Legs yellowish, but dark brown on patellae

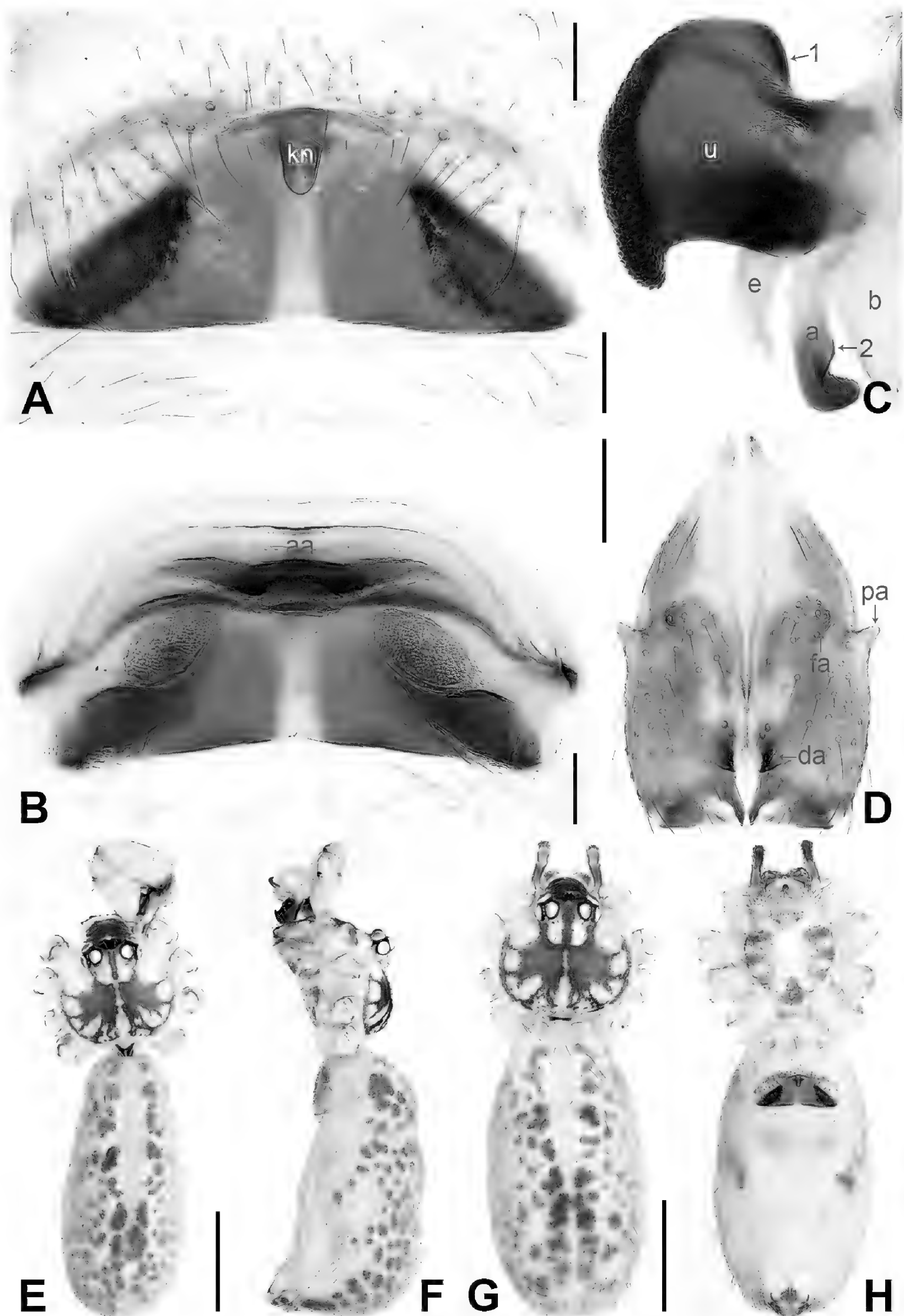


Figure 11. *Pholcus miyi* sp. nov., holotype male (**C–F**) and paratype female (**A, B, G, H**) **A** epigyne, ventral view **B** vulva, dorsal view **C** bulbal apophyses, prolateral view, arrow 1 points at proximal apophysis, arrow 2 points at angular median branch **D** chelicerae, frontal view **E–H** habitus (**E, G** dorsal view **F** lateral view **H** ventral view). Abbreviations: a = appendix, aa = anterior arch, b = bulb, da = distal apophysis, e = embolus, fa = frontal apophysis, kn = knob, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.10 (**A–C**); 0.20 (**D**); 1.00 (**E–H**).

and whitish on distal parts of femora and tibiae, with darker rings on proximal, sub-proximal, submedian and subdistal parts of femora and proximal and subdistal parts of tibiae. Opisthosoma yellowish, with dorsal and lateral brown spots.

Body: Habitus as in Fig. 11E, F; ocular area elevated, without eye-stalks.

Chelicerae: As in Fig. 11D, with pair of proximo-lateral apophyses, pair of distal apophyses with two teeth each, and pair of frontal apophyses.

Palp: As in Fig. 10A, B; trochanter with long (4× longer than wide), retrolaterally strongly bulged ventral apophysis; femur with retrolatero-proximal protrusion (arrow in Fig. 10B) and distinct ventral protrusion; tibia with prolatero-ventral protrusion (arrow in Fig. 10A); procursus simple proximally but complex distally, with raised, prolatero-subdistal membranous edge bearing sclerotized pointed subdistal apophysis, sawtooth subdistal membranous process and distal membranous process (arrows 1–3 in Fig. 10C), sawtooth distal apophysis (arrow 4 in Fig. 10C), dorso-subdistal sclerite (arrow 5 in Fig. 10C), and one slender and two strong dorsal spines (arrows in Fig. 10D); uncus with scaly edge and proximal apophysis (arrow 1 in Fig. 11C; arrow in Fig. 14E); appendix hooked, with angular median branch (arrow 2 in Fig. 11C); embolus weakly sclerotized, with some transparent distal projections (Figs 11C, 14E).

Legs: Retrolateral trichobothrium on tibia I at 6% proximally; legs with short vertical setae on tibiae, metatarsi, and tarsi; tarsus I with 26 distinct pseudosegments.

Female (paratype, SYNU-Ar00487): Similar to male, habitus as in Fig. 11G, H. Total length 3.82 (3.99 with clypeus), carapace 1.13 long, 1.33 wide, opisthosoma 2.69 long, 1.44 wide; tibia I: 6.92; tibia I L/d: 58. Eye interdistances and diameters: PME–PME 0.19, PME 0.13, PME–ALE 0.04, AME–AME 0.04, AME 0.09. Sternum width/length: 0.82/0.77. Epigyne nearly triangular, laterally strongly sclerotized, with knob (Fig. 11A). Vulva with curved, posteriorly sclerotized anterior arch and pair of nearly elliptic pore plates (Fig. 11B).

Variation. Tibia I in paratype male (SYNU-Ar00486): 8.85. Tibia I in another paratype female (SYNU-Ar00488): 6.41.

Habitat. Underside of overhang on rocky cliffs in the mountain area.

Distribution. China (Sichuan, type locality; Fig. 1).

***Pholcus yaan* Li, Li & Yao, sp. nov.**

<https://zoobank.org/F034C317-2580-420F-B24E-123C64607BE8>

Figs 12, 13, 14F

Type material. Holotype: China • ♂; Sichuan, Yaan, Lushan County, Longdongpo; 30.089279°N, 102.931493°E; alt. 944 m; 24 May 2024; X. Zhang, Y. Wang & Q. Meng leg.; SYNU-Ar00489. **Paratypes:** China • 3 ♀; same data as for the holotype; SYNU-Ar00490–92.

Etymology. The specific name refers to the type locality; noun in apposition.

Diagnosis. The new species resembles *P. mengding* sp. nov. (Figs 8A–D, 9A–H, 14D) by having similar uncus (Figs 13C, 14F), male chelicerae (Fig. 13D) and epigyne (Fig. 13A), but can be distinguished by prolatero-subdistal membranous edge of procursus laterally pointed (arrow 1 in Fig. 12D vs laterally blunt), by appendix without branch (a in Figs 13C, 14F vs with curved subdistal branch), and by vulval pore plates nearly round (pp in Fig. 13B vs nearly elliptic, 2× longer than wide).

Description. Male (holotype): Measurements: Total length 4.64 (4.86 with clypeus), carapace 1.34 long, 1.48 wide, opisthosoma 3.30 long, 1.52 wide. Leg I: 43.27 (10.71, 0.68, 10.77, 18.65, 2.46), leg II: 28.33 (7.69, 0.67, 7.05, 11.54, 1.38), leg III: 19.25 (5.64, 0.56, 4.68, 7.37, 1.00), leg IV: 25.63 (7.37, 0.63, 6.35, 9.94,

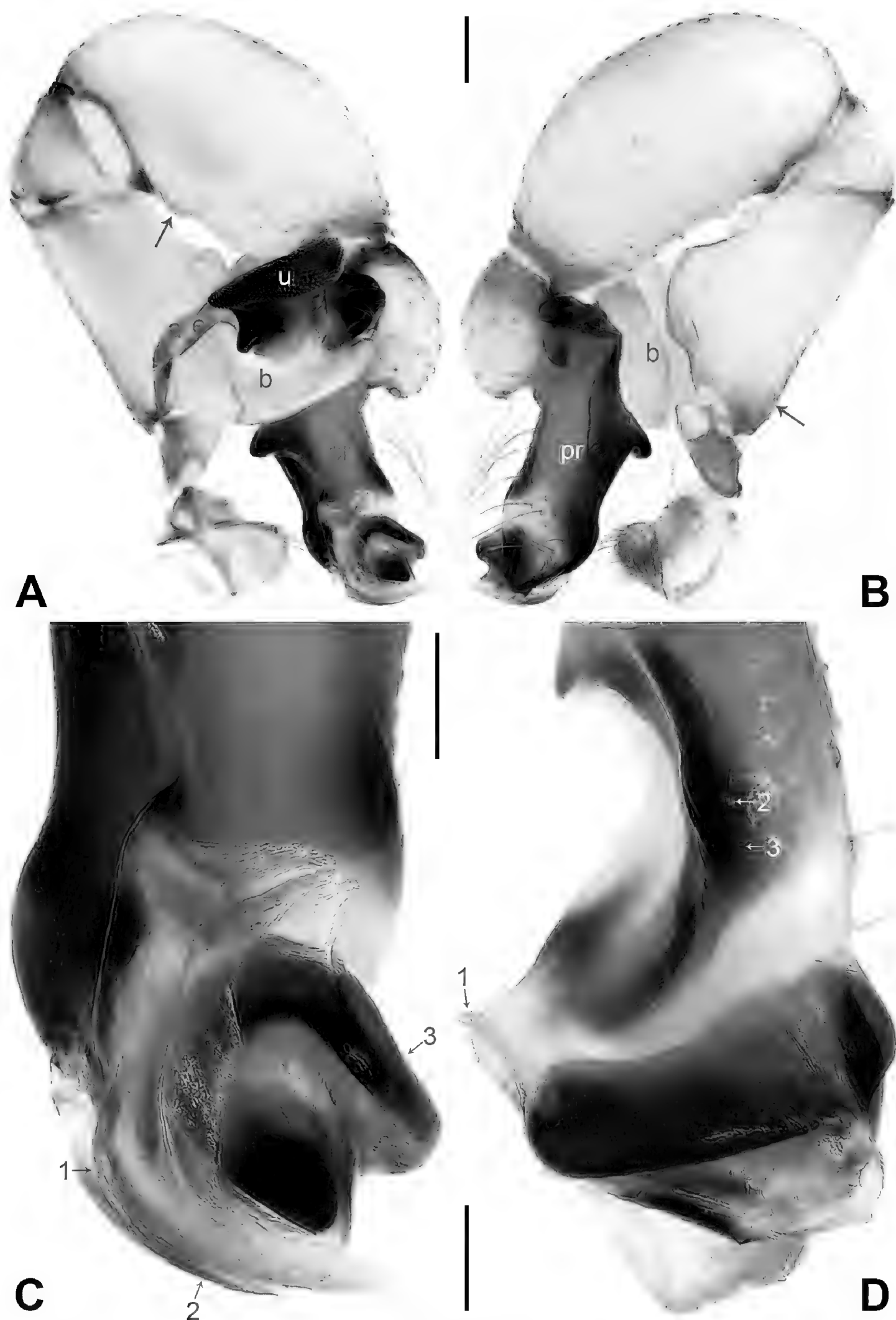


Figure 12. *Pholcus yaan* sp. nov., holotype male **A, B** palp (**A** prolateral view, arrow points at prolatero-ventral protrusion **B** retrolateral view, arrow points at retrolatero-proximal protrusion) **C, D** distal part of procursus (**C** prolateral view, arrow 1 points at distal membranous process, arrow 2 points at sclerotized part, arrow 3 points at sclerotized dorso-subdistal apophysis **D** dorsal view, arrow 1 points at laterally pointed prolatero-subdistal membranous edge, arrows 2, 3 point at dorsal spines). Abbreviations: a = appendix, b = bulb, e = embolus, pr = procursus, u = uncus. Scale bars: 0.20 (**A, B**); 0.10 (**C, D**).

1.34); tibia I L/d: 80. Eye interdistances and diameters: PME–PME 0.31, PME 0.18, PME–ALE 0.06, AME–AME 0.07, AME 0.09. Sternum width/length: 1.00/0.90.

Color: Carapace yellowish, with brown radiating marks and marginal brown bands; ocular area and clypeus brown; sternum yellowish, with brown marks. Legs yellowish, but dark brown on patellae and whitish on distal parts of femora

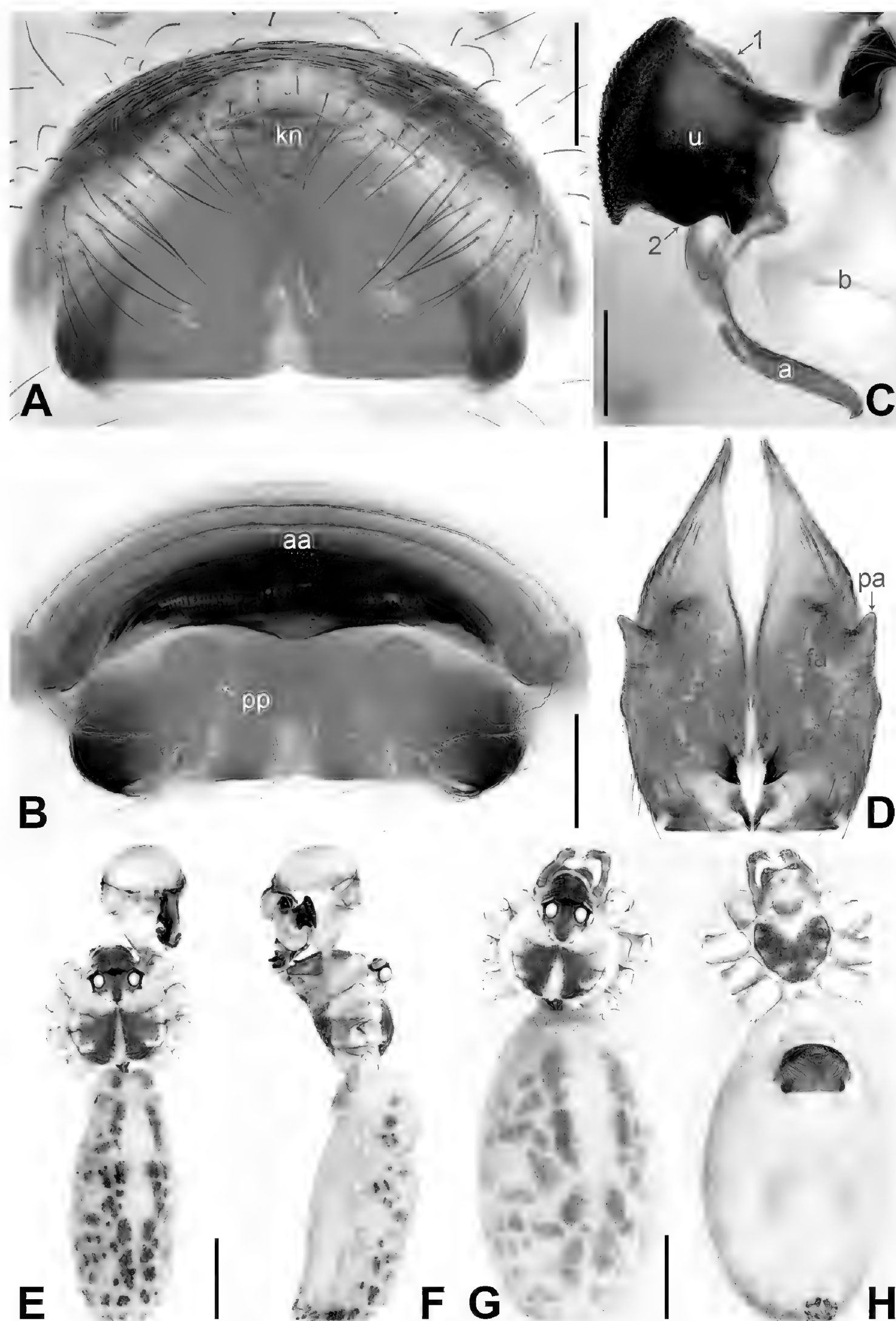


Figure 13. *Pholcus yaan* sp. nov., holotype male (**C–F**) and paratype female (**A, B, G, H**) **A** epigyne, ventral view **B** vulva, dorsal view **C** bulbal apophyses, prolateral view, arrow 1 points at proximal apophysis, arrow 2 points at latero-medial protrusion **D** chelicerae, frontal view **E–H** habitus (**E, G** dorsal view **F** lateral view **H** ventral view). Abbreviations: a = appendix, aa = anterior arch, b = bulb, da = distal apophysis, e = embolus, fa = frontal apophysis, kn = knob, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.20 (**A–D**); 1.00 (**E–H**).

and tibiae, with darker rings on subdistal parts of femora and proximal and subdistal parts of tibiae. Opisthosoma yellowish, with dorsal and lateral brown spots.

Body: Habitus as in Fig. 13E, F; ocular area elevated, each eye triad on top of laterally directed eye-stalk.

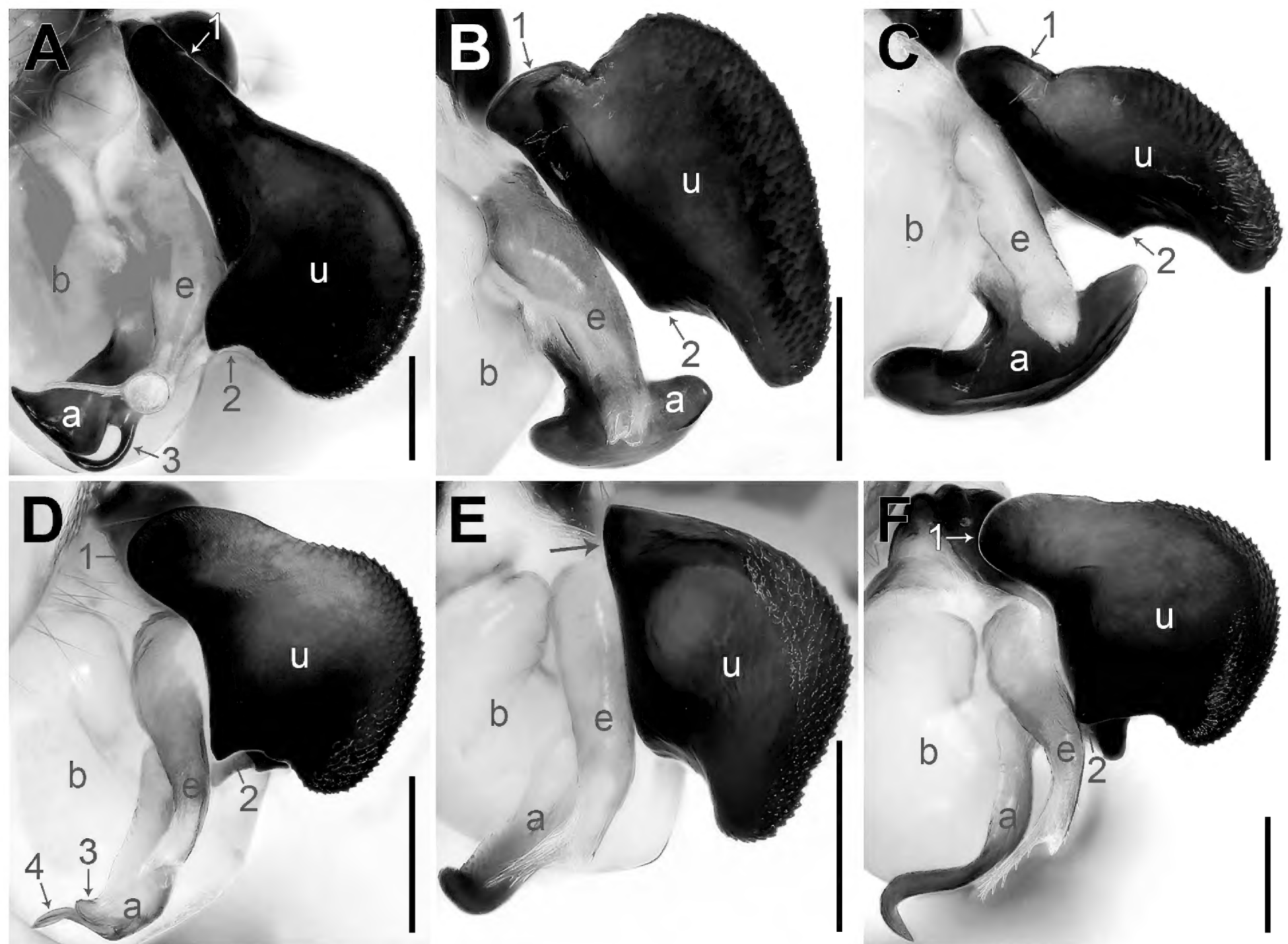


Figure 14. Bulbal apophyses, retrolatero-ventral views **A** *Pholcus qiaoja* sp. nov., arrow 1 points at proximal apophysis, arrow 2 points at latero-median protrusion, arrow 3 points at slender subdistal branch **B** *P. aba* sp. nov., arrow 1 points at proximal apophysis, arrow 2 points at latero-median protrusion **C** *P. wenchuan* sp. nov., arrow 1 points at proximal apophysis, arrow 2 points at latero-median protrusion **D** *P. mengding* sp. nov., arrow 1 points at proximal apophysis, arrow 2 points at latero-median protrusion, arrow 3 points at hooked appendix, arrow 4 points at curved subdistal branch **E** *P. miyi* sp. nov., arrow points at proximal apophysis **F** *P. yaan* sp. nov., arrow 1 points at proximal apophysis, arrow 2 points at latero-median protrusion. Abbreviations: a = appendix, b = bulb, e = embolus, u = uncus. Scale bars: 0.20 (**A–F**).

Chelicerae: As in Fig. 13D, with pair of proximo-lateral apophyses, pair of distal apophyses with two teeth each, and pair of frontal apophyses.

Palp: As in Fig. 12A, B; trochanter with long (2× longer than wide), retro-laterally strongly bulged ventral apophysis; femur with retrolatero-proximal protrusion (arrow in Fig. 12B) and distinct ventral protrusion; tibia with pro-latero-ventral protrusion (arrow in Fig. 12A); procursus simple proximally but complex distally, with raised, pro-latero-subdistal membranous edge bearing distal membranous process (arrow 1 in Fig. 12C), distal membranous process bearing sclerotized part (arrow 2 in Fig. 12C), sclerotized dorso-subdistal apophysis (arrow 3 in Fig. 12C), and two slender dorsal spines (arrows 2, 3 in Fig. 12D); uncus with scaly edge, proximal apophysis, and distinct latero-median protrusion (arrows 1, 2 in Figs 13C, 14F); appendix slender and curved (Figs 13C, 14F); embolus weakly sclerotized, with some transparent distal projections (Figs 13C, 14F).

Legs: Retrolateral trichobothrium on tibia I at 6% proximally; legs with short vertical setae on tibiae, metatarsi, and tarsi; tarsus I with 37 distinct pseudosegments.

Female (*paratype*, SYNU-Ar00490): Similar to male, habitus as in Fig. 13G, H. Total length 5.10 (5.35 with clypeus), carapace 1.22 long, 1.45 wide, opisthosoma 3.88 long, 2.28 wide; tibia I: 8.40; tibia I L/d: 60. Eye interdistances and diameters: PME–PME 0.19, PME 0.17, PME–ALE 0.04, AME–AME 0.06, AME 0.08. Sternum width/length: 0.95/0.89. Ocular area without eye-stalks. Epigyne nearly triangular, laterally strongly sclerotized, with knob (Fig. 13A). Vulva with curved, posteriorly sclerotized anterior arch and pair of nearly round pore plates (Fig. 13B).

Variation. Tibia I in the other two paratype females (SYNU-Ar00491–92): 8.72, 8.91.

Habitat. Underside of overhang on rocky cliffs in the mountain area.

Distribution. China (Sichuan, type locality; Fig. 1).

Discussion

Pholcus exhibits a high degree of diversity in eastern Sichuan, and our study has identified five newly described species and one newly recorded species from this region. As of now, a total of 19 species have been recorded in eastern Sichuan. However, the survey efforts for *Pholcus* in this area have been highly uneven, primarily because the majority of these species are distributed in the western part of the Sichuan Basin. The current distribution pattern of this genus in eastern Sichuan indicates that it is likely also present in the highlands of the southwestern and northeastern parts of the Sichuan Basin. We are confident that a significant number of new *Pholcus* species remains to be discovered in these regions.

Acknowledgements

The manuscript benefited greatly from comments by Matjaž Kuntner and two anonymous reviewers.

Additional information

Conflict of interest

The authors have declared that no competing interests exist.

Ethical statement

No ethical statement was reported.

Funding

This study was supported by the Science & Technology Fundamental Resources Investigation Program of China (2023FY100200), the National Natural Science Foundation of China (NSFC-32170461, 31872193), and the Liaoning Provincial Doctoral Research Startup Fund Project (2024-BS-109).

Author contributions

ZY and XZ designed the study. JL, SL, and ZY performed morphological species identification. JL finished the descriptions and took the photos. XZ contributed the fieldwork and collected molecular data. ZY, JL, XZ, and SL drafted and revised the manuscript.

Author ORCIDs

Jinglin Li  <https://orcid.org/0009-0008-3932-309X>

Shuqiang Li  <https://orcid.org/0000-0002-3290-5416>

Xiaoqing Zhang  <https://orcid.org/0000-0003-0687-9266>

Zhiyuan Yao  <https://orcid.org/0000-0002-1631-0949>

Data availability

All of the data that support the findings of this study are available in the main text.

References

- Dong T, Zheng G, Yao Z, Li S (2016a) Fifteen new species of the spider genus *Pholcus* (Araneae: Pholcidae) from Southeast Asia. *Zootaxa* 4136(2): 201–246. <https://doi.org/10.11646/zootaxa.4136.2.1>
- Dong T, Zheng G, Yao Z, Li S (2016b) Thirteen new species of the spider genus *Pholcus* Walckenaer, 1805 (Araneae: Pholcidae) from China. *Zootaxa* 4170(1): 1–40. <https://doi.org/10.11646/zootaxa.4170.1.1>
- Dong T, Zheng G, Yao Z, Li S (2017) Ten new species of the spider genus *Pholcus* Walckenaer, 1805 (Araneae, Pholcidae) from Southeast Asia. *Zootaxa* 4306(3): 339–369. <https://doi.org/10.11646/zootaxa.4306.3.3>
- Folmer O, Black M, Hoeh W, Lutz R, Vrijenhoek R (1994) DNA primers for amplification of mitochondrial cytochrome c oxidase subunit I from diverse metazoan invertebrates. *Molecular Marine Biology and Biotechnology* 3(5): 294–299.
- Huber BA (2011) Revision and cladistic analysis of *Pholcus* and closely related taxa (Araneae, Pholcidae). *Bonner Zoologische Monographien* 58: 1–509.
- Huber BA, Eberle J, Dimitrov D (2018) The phylogeny of pholcid spiders: A critical evaluation of relationships suggested by molecular data (Araneae, Pholcidae). *ZooKeys* 789: 51–101. <https://doi.org/10.3897/zookeys.789.22781>
- Khmelik VV, Kozub D, Glazunov A (2005) Helicon Focus 3.10.3. <https://www.heliconsoft.com/heliconsoft-products/helicon-focus/> [accessed 8 January 2025]
- Lan T, Jäger P, Zhu W, Li S (2021) Pholcid spiders (Araneae: Pholcidae) from Southeast Asia, with descriptions of five new species. *Zootaxa* 4963(3): 545–562. <https://doi.org/10.11646/zootaxa.4963.3.8>
- Li J, Zhang X, Yao Z (2024) A new spider species of the *Pholcus yichengicus* species group (Araneae, Pholcidae) from Hebei Province, northern China. *Biodiversity Data Journal* 12: e141640. [1–7] <https://doi.org/10.3897/BDJ.12.e141640>
- Lu Y, Yang F, He Q (2021) *Pholcus maxian* sp. nov., the fifth endemic spider species of *Pholcus phungiformes* species-group (Araneae: Pholcidae) at the border between Jilin, China and North Korea. *Biodiversity Data Journal* 9: e72464. [1–7] <https://doi.org/10.3897/BDJ.9.e72464>
- Lu Y, Chu C, Zhang X, Li S, Yao Z (2022a) Europe vs. China: *Pholcus* (Araneae, Pholcidae) from Yanshan-Taihang Mountains confirms uneven distribution of spiders in Eurasia. *Zoological Research* 43(4): 532–534. [+ Suppl. 1–78] <https://doi.org/10.24272/j.issn.2095-8137.2022.103>
- Lu Y, Yao Z, He Q (2022b) A new species of *Pholcus yichengicus* species-group (Araneae, Pholcidae) from Hebei Province, China. *Biodiversity Data Journal* 10: e81800. [1–7] <https://doi.org/10.3897/BDJ.10.e81800>
- Tong Y, Li S (2010) Eight new spider species of the genus *Pholcus* (Araneae, Pholcidae) from China. *Zootaxa* 2355(1): 35–55. <https://doi.org/10.11646/zootaxa.2355.1.2>

- WSC (2025) World Spider Catalog. Version 25.5. Natural History Museum Bern. <http://wsc.nmbe.ch> [accessed 8 January 2025]
- Yang L, Fu C, Zhang Y, He Q, Yao Z (2024a) A survey of *Pholcus* spiders (Araneae, Pholcidae) from the Qinling Mountains of central China, with descriptions of seven new species. *Zoosystematics and Evolution* 100(1): 199–221. <https://doi.org/10.3897/zse.100.116759>
- Yang L, He Q, Yao Z (2024b) Taxonomic study of four closely-related species of the *Pholcus yichengicus* species group (Araneae, Pholcidae) from China's Qinling Mountains: An integrated morphological and molecular approach. *Zoosystematics and Evolution* 100(1): 279–289. <https://doi.org/10.3897/zse.100.115633>
- Yao Z, Li S (2012) New species of the spider genus *Pholcus* (Araneae: Pholcidae) from China. *Zootaxa* 3289(1): 1–271. <https://doi.org/10.11646/zootaxa.3289.1.1>
- Yao Z, Li S (2025) Evolutionary history of Old World cellar spiders in the context of Neo-Tethyan sea-land transformations. *Zoological Research*. [in press] <https://doi.org/10.24272/j.issn.2095-8137.2024.395>
- Yao Z, Pham DS, Li S (2015) Pholcid spiders (Araneae: Pholcidae) from northern Vietnam, with descriptions of nineteen new species. *Zootaxa* 3909(1): 1–82. <https://doi.org/10.11646/zootaxa.3909.1.1>
- Yao Z, Dong T, Zheng G, Fu J, Li S (2016) High endemism at cave entrances: a case study of spiders of the genus *Uthina*. *Scientific Reports* 6: 35757. [1–9 + Suppl. 1–52] <https://doi.org/10.1038/srep35757>
- Yao Z, Wang X, Li S (2021) Tip of the iceberg: species diversity of *Pholcus* spiders (Araneae, Pholcidae) in the Changbai Mountains, Northeast China. *Zoological Research* 42(3): 267–271. [+ Suppl. 1–60] <https://doi.org/10.24272/j.issn.2095-8137.2021.037>
- Zhao F, Jiang T, Yang L, He Q, Zheng G, Yao Z (2023a) Pholcid spiders of the *Pholcus phungiformes* species-group (Araneae, Pholcidae) from Liaoning Province, China: An overview, with description of a new species. *ZooKeys* 1156: 1–14. <https://doi.org/10.3897/zookeys.1156.98331>
- Zhao F, Yang L, Zou Q, Ali A, Li S, Yao Z (2023b) Diversity of *Pholcus* spiders (Araneae: Pholcidae) in China's Lüliang Mountains: an integrated morphological and molecular approach. *Insects* 14(4): 364. [1–34] <https://doi.org/10.3390/insects14040364>
- Zhu K, Yao Z, Bai X, Li S (2018) Five new species of the spider genus *Pholcus* Walckenaer, 1805 (Araneae: Pholcidae) from China and Thailand. *Zootaxa* 4377(2): 235–253. <https://doi.org/10.11646/zootaxa.4377.2.5>